Clinical Vignette Symposium 2023

Book of Abstracts

University of Oklahoma –Tulsa
School of Community Medicine

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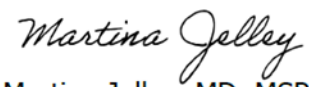
Dear Colleagues,

It is my pleasure to welcome you to the 12th annual Clinical Vignette Symposium (CVS) hosted by the OU School of Community Medicine. At CVS, trainees present interesting and unusual medical case studies in a conference setting. We look forward to learning the stories behind these unique case reports.

In addition to poster and podium presentations at CVS, authors have an opportunity to upload their work to the Open Science Framework (OSF). Posters and podium presentations uploaded to OSF will be more widely disseminated to a global community. Authors will also be able to include these presentations as citations on their Curriculum Vitae. Awards will be given to the top scoring posters. These awards may be used toward travel or publication fee expenses to further disseminate their scholarly work.

I would like to thank the Tulsa County Medical Society for their generous donation to this year's event. I would also like to thank the presenters as well as those who organized and are hosting CVS this year. We hope you enjoy CVS 2023.

Sincerely,



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ORDSA would like to thank all faculty and staff who contributed their time and energy to organizing the 2023 Clinical Vignette Symposium. ORDSA would also like to thank the library for their assistance. Finally, ORDSA would like to express our appreciation to the Tulsa County Medical Society for sponsoring this event as well as to the OUSCM faculty who provide financial contributions to the event.

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Oral Presentations

Abstract #72 Robot-Assisted Laparoscopic Hysterectomy for Management of Cervical Ectopic Pregnancy

Dr. Uzma Sandhu - OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Dr. Karen Gold - OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
Dr. Carol Cox - OU-TU School of Community Medicine, Department of Obstetrics and Gynecology
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Introduction

An ectopic pregnancy occurs when a fertilized egg implants and grows outside the uterus' main cavity. Cervical ectopic pregnancy is the rare implantation of a pregnancy in the endocervical canal and accounts for less than 1% of all ectopic pregnancies. Early diagnosis and treatment is critical to avoid serious complications such as severe hemorrhage and maternal death. There is no consensus on treatment for ectopic pregnancy. Fertility sparing treatments include methotrexate, surgical evacuation with dilatation and curettage, and uterine artery embolization. Hysterectomy is an acceptable option for patients that do not desire fertility.

Case Description

A 29 year old G6P5005 presented to an emergency room with lower abdominal pain and vaginal bleeding. She underwent a transvaginal ultrasound that showed a low-lying intrauterine pregnancy in the cervix. The crown-rump length was consistent with a gestational age of 6 weeks 4 days and there was fetal cardiac activity noted. There was a quantitative level of b-HCG greater than 40,000. The patient was transferred for a higher level of care where she had repeat imaging (ultrasound imaging) that confirmed her diagnosis. She had a normal hemoglobin and a non-surgical abdomen at admission. The patient was counseled on management. She did not ultimately desire fertility and desired to proceed with hysterectomy. Preoperatively, she underwent a bilateral uterine artery embolization with interventional radiology. Patient then had robotic assisted total laparoscopic hysterectomy, right salpingectomy, cystourethroscopy. Estimated blood loss was 50 ml after the procedure. The patient had an uncomplicated postoperative course and was discharged on postoperative day 1.

Discussion/Conclusion

Review of the literature on cervical ectopic pregnancy reveals largely case reports and brief case series with only reports of abdominal approach and a single report of vaginal approach. When it comes to hysterectomy for benign disease, minimally invasive laparoscopic and vaginal approaches have well-documented advantages over abdominal hysterectomy including shortened hospitalization and postoperative recovery times. The American College of Obstetricians and Gynecologists recommends that minimally invasive approaches to hysterectomy for benign disease should be performed whenever feasible. This case demonstrates that laparoscopic hysterectomy may be an alternative to abdominal hysterectomy for patients with cervical pregnancy who have no interest in future fertility or for whom conservative therapy has failed.

Abstract #73 An Unexpected Finding Within the Inguinal Canals

Dr. Darby Sparks - OU-TU School of Community Medicine, Department of Pediatrics
Dr. Daniel Kim - OU-TU School of Community Medicine, Department of Pediatrics
Dr. Laura Stuemky - OU-TU School of Community Medicine, Department of Pediatrics
Dr. David Jelley - OU-TU School of Community Medicine, Department of Pediatrics

Introduction

Disorders of sexual development encompass a broad range of conditions in which there is discordance between a patient's sex chromosomes, gonads, and external genitalia. Some of these conditions present at birth when an infant is born with ambiguous genitalia. However, when the external genitalia look typically male or female, the diagnosis may not be immediately apparent. This case represents a patient with female external genitalia, uterine agenesis, 46XY karyotype, and the presence of testes. Cases such as this typically present in adolescence when a female patient fails to reach menarche. Rarely, they present prior to puberty when an infant or young female is found to have bilateral inguinal hernias containing testes.

Case Description

A 4-year-old female presented to the emergency room with severe abdominal pain and bilious emesis. She had a previously diagnosed right inguinal hernia, which her mother reported felt hard for the first time and was not reducible. On exam, normal female genitalia and a 1 cm firm, round, mobile mass medial to the inguinal ligament in her right groin that was tender to palpation were noted. Surgery was consulted and presumed the mass to be a strangulated ovary. She was taken to surgery for laparoscopic inguinal hernia reduction and repair where she was found to have what appeared to be bilateral ovotestis in her inguinal canals and uterine agenesis. The presumed ovotestis were biopsied then reduced back into the abdomen and hernias repaired. Pediatric endocrinology was consulted and recommended further testing. Karyotype testing was significant for XY sex chromosomes. Her total testosterone was slightly low, and her free testosterone, sex hormone binding globulin, and 5-alpha-Dihydrotestosterone levels were within normal limits. She was discharged with plans to follow up with pediatric endocrinology. Further testing is warranted to determine which disorder of sexual development is present.

Discussion/Conclusion

This case demonstrates an example of disordered sexual development in a seemingly typical appearing female presenting prior to puberty, with testes being discovered incidentally during an inguinal hernia repair. The differential diagnosis includes androgen insensitivity syndrome, Leydig cell agenesis, and feminizing forms of congenital adrenal hyperplasia, among others. Inguinal hernias occur more commonly in males than females, and in one study, the incidence of complete androgen insensitivity syndrome in phenotypic females undergoing inguinal hernia repair was found to be 1%. This raises the question as to whether disorders of sexual development should be considered when prepubescent females present with inguinal hernias.

Poster Presentations

Emergency Medicine

Abstract #2 Gila Monster Bite/Envenomation in Rural Oklahoma

Dr. Patrick Sharp - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Christoph Schieche - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

There are two species of venomous lizards in the world. These are the Gila Monster and Mexican Beaded Lizard. Little data is published regarding the incidence of venomous lizard bites in the United States and no antivenom exist for their bites. The Gila Monster is the only venomous lizard native to the United States and while bites are relatively rare, clinicians should be familiar with the possible complications of envenomation.

Case Description

65 yo F presenting with chief complaint of Gila monster bite as well as pain. She states that she raises Gila Monsters in rural northern Oklahoma and one of her lizards bit her approximately 2 hours prior to arrival. She is aware they are venomous and presented for evaluation. Physical exam showed 6 small abrasions on the lateral right thumb consistent with teeth marks. No notable swelling but patient did complain of pain. She says the lizard was latched onto her thumb and she had to use her other hand to remove it. Physical exam: No rashes or oral mucosa edema.

Laboratory testing unremarkable including CBC, BMP, DIC Panel. An X-ray of the right hand showed no foreign bodies. Interventions included irrigating wounds and updating tetanus.

Discussion/Conclusion

Gila Monster bites can have a wide variety of presenting symptoms. These include pain, GI distress, edema, retained foreign body, disseminated intravascular coagulation and anaphylaxis. If a patient arrives to the emergency department and was not able to remove the lizard, removal is the first priority. Gila monsters do not inject venom but their venom is contained in their saliva. Therefore longer bite time increases venom exposure. Workup should include CBC, BMP, and coagulation studies to rule out DIC. X-ray of the bite should also be obtained to evaluate for retained teeth which would be prone to infection. Antibiotics are not commonly indicated but tetanus should be updated if not already up to date. It remains important that clinicians are aware of the possible complications of venomous lizard bites, and that they maintain a high index of suspicion for possible envenomation. This case describes a patient with a good outcome. Prompt diagnosis and treatment of fatal complications like DIC and anaphylaxis are necessary for survival.

Abstract #7 A Rare Etiology of Cauda Equina Syndrome

Dr. Ryan Winchell - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Brian Milman - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Cauda Equina Syndrome (CES) is a surgical emergency caused by compression of nerve roots (cauda equina) located in the lumbar spine. Symptoms of CES may include lumbar back pain, unilateral or bilateral lower extremity pain or weakness, urinary and rectal dysfunction or incontinence, changes in sensation to the perineum and/or lower extremities. 45% of cases of CES are caused by lumbar disc herniation. Other less common causes include neoplasm, infection, trauma, hematoma, or inflammation of the spine. The prevalence of CES is estimated between 1:33,000 and 1:100,000.

Case Description

A previously healthy 60-year-old male presented to the emergency department for evaluation of increasing lower back pain and bilateral leg weakness. The patient also reported urinary hesitancy. The patient's symptoms began two weeks prior to presentation. Patient was seen at multiple urgent care clinics and one emergency department during the two week period. On exam, patient was noted to have bilateral leg weakness with left worse than right. Patellar reflexes were decreased on the right. Patient had decreased sensation to distal lateral left thigh and lateral left calf. Lab work was unremarkable. MRI of the lumbar spine was notable for a right epidural cyst measuring 14 x 8 x 16 mm, and a left epidural cyst measuring 6 x 5 x 11 mm at L4-L5, most likely representing a facet synovial cyst. This contributed to severe canal stenosis. Patient was admitted and underwent operative decompression of the spinal canal.

Discussion/Conclusion

CES is a rare, but serious, cause of lower back pain and extremity weakness and must be considered in patients that present with these symptoms. MRI will be notable for severe spinal canal stenosis which confirms the diagnosis. Timely surgical repair is necessary and early intervention improves prognosis. Recovery is related to duration and severity of symptoms however, the prognosis is worse if urinary retention is present. Lumbar synovial cysts are cystic structures adjacent to facet joints of the lumbar spine and are a rare cause of CES. In a case series of 6 cases of CES secondary to synovial cysts, 5 out of the 6 patients had full recovery following surgical decompression. Prompt recognition and prompt decompression are paramount in management of CES.

Abstract #17 Chronic Digoxin Toxicity: A Dying Drug Presenting with a Life-Threatening Diagnosis

Dr. Arne Gratias - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Brian Milman - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Digoxin is a cardiac glycoside that inhibits the sodium-potassium-ATPase, a transmembrane protein pump found in myocardial cells. It is used mainly in treatment resistant cases of atrial arrhythmias and heart failure due to its ability to increase contractility, decrease atrioventricular node conduction and reduce heart rate. Although the use of Digoxin has declined, toxicity remains a significant source of morbidity and mortality. Digoxin has a narrow therapeutic window and thus close monitoring, and consideration of toxicity is vital.

Case Description

An 85-year-old female presented to the emergency department for dizziness and weakness for approximately two weeks. She was found to have significant bradycardia by her home health nurse, with a reported rate of 20-30 beats per minute. Upon arrival, the patient was normotensive, alert and orientated, her heart rate was 45 and irregular, and her oxygen saturation was 97% on room air. The electrocardiogram done at time of arrival showed atrial fibrillation and chest radiograph showed signs of congestive heart failure. Upon review of home medications, it was discovered that the patient was prescribed Digoxin, Carvedilol and Diltiazem. Labs revealed a mildly elevated troponin, potassium of 4.3 mEq/L, chronically high creatinine down from baseline and a Digoxin level of 2.9. The patient was treated with 80mg of a Digoxin specific antibody called DIGIFab. The patient was subsequently admitted to the hospital, Digoxin was discontinued, heart rate improved, symptoms resolved, and she was discharged in improved condition.

Discussion/Conclusion

Digoxin toxicity can be a life-threatening condition. Prognosis improves with early diagnosis and management. Toxicity can be acute or chronic, acute often seen in younger patients with sudden onset of symptoms and chronic toxicity seen in older patients with a more insidious course of fatigue, malaise, nausea and dizziness. Patients could also report visual disturbances like xanthopsia or present with a large variety of arrhythmias. Cardiac glycosides exist in other forms including foxglove, oleander, milkweed etc. This was an example of chronic toxicity where the dose of DIGIFab can be determined as follows: number of vials = (serum digoxin concentration ng/mL × patient weight kg)/100. DIGIFab is indicated in chronic toxicity when there is life-threatening arrythmias, significant GI symptoms, potassium >5.0, unstable hemodynamics, or AMS. This is a good reminder to review a medication list and keep Digoxin toxicity on the differential despite the decreased use of this drug.

Abstract #21 Peritoneal Mesothelioma Resulting in Culture Negative Malignant Ascites

Dr. Ashwin Adivi - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Eric Lee - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Peritoneal mesothelioma is an exceptionally rare and lethal malignancy. Of the 3300 cases of mesothelioma that are diagnosed per year, 10-15 percent are peritoneal. Risk factors for development include asbestos exposure, genetic predisposition, and radiation therapy.

Case Description

A 22 year old male recently diagnosed with peritoneal mesothelioma presented with high fevers, tachycardia, worsening abdominal distension, and malaise for several days. His vital signs were concerning for a heart rate of 130, respiratory rate in the 20s, temperature of 103°F, and blood pressure of 117/74. Physical exam revealed a distended abdomen without diffuse tenderness. He reported some focal tenderness to his right 8-10th rib space that was reproducible to palpation. Laboratory evaluation revealed leukocytosis to 17 with neutrophilic predominance, thrombocytosis to 495, normal chemistries, urinary analysis without evidence of UTI, and blood cultures with no growth at 48 hours. A CT scan of the abdomen with IV contrast showed interval increase in ascites from his scan 2 weeks prior. He was admitted for a diagnostic paracentesis to rule out spontaneous bacterial peritonitis (SBP) and for further workup of his febrile illness. He was started on broad spectrum antibiotics given his evident SIRS criteria. During his inpatient course he was transferred to the ICU due to the volatility of his tachycardia and borderline hypotension. He had 2 paracenteses which demonstrated a lymphocytic predominance and a neutrophilic predominance, respectively and was switched to meropenem for broad coverage for SBP. Ultimately, his ascitic fluid had no culture growth. His tachycardia and fevers resolved spontaneously and were attributed to paraneoplastic fevers per both infectious disease and hematology/oncology consultants. He developed an AKI from nephrotoxic antibiotics, intravascular depletion, contrast exposure, and increased intrabdominal pressure that eventually resolved. He was discharged in stable condition and sought definitive care for his peritoneal mesothelioma at a quaternary care center.

Discussion/Conclusion

Little is known about peritoneal mesothelioma. This case report demonstrates a perhaps under-appreciated association between the disease and a paraneoplastic process that mimics SBP. Paraneoplastic syndromes have been frequently described in the setting of mesothelioma resulting in fevers, thrombosis, hypoglycemia, anemia and thrombocytosis. Given the patient's clinical picture it was highly unlikely that he would have SBP. Despite the interval increase in ascitic fluid, focal abdominal pain without diffuse tenderness would be unusual for SBP. As always, a broad differential must be maintained to prevent premature closure and potential iatrogenic harm.

Abstract #22 Tumor Lysis Syndrome in the Emergency Department

Dr. Frank Aughe-Flores - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Chelsea Bowman - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Brian Milman - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Tumor lysis syndrome (TLS) is the most common oncologic emergency and occurs in both pediatric and adult patients. It is the result of intracellular contents released from lysing tumor cells, usually in response to chemotherapeutic agents. This rapid cell lysis causes systemic increases in potassium, phosphate, and uric acid which leads to arrhythmia, kidney injury, and eventually death. Hematologic malignancies are at highest risk for TLS, but there are case reports of TLS in solid tumors.

Case Description

A 76-year-old male with history of hypertension, type II diabetes, and small cell carcinoma (SCNEC) presented to the emergency department (ED) with fatigue, shortness of breath, nausea, vomiting and diarrhea. He had completed a course of carboplatin and etoposide 6 months prior to visit. Recent repeat PET scan demonstrated progression of cancer. He was started on Lurbinectedin 3 days prior to ED evaluation. Patient was acutely ill and toxic appearing on arrival. He was noted to be encephalopathic and hypotensive with systolic blood pressure in the 80s and peaked T-waves on EKG.

Laboratory evaluation revealed potassium of 8.2 mmol/L, creatinine of 3.35 mg/dL, phosphorous of 7.5 mg/dL, and uric acid of 17.1 mg/dL. Patient was hydrated, treated with calcium, potassium was shifted and rasburicase was given. Nephrology was consulted and patient was emergently dialyzed and admitted to the ICU. Following admission, his hospital course was complicated by persistent hyperkalemia, worsening encephalopathy, intubation, vasopressor requirement, and inability to tolerate dialysis due to hemodynamics. Ultimately, his family decided on comfort measures only and the patient expired in the hospital.

Discussion/Conclusion

Tumor lysis syndrome is a high mortality diagnosis and occurs in 3-11% of leukemia and lymphoma and less than 1% of solid organ tumors. The Cairo-Bishop criteria are often used in diagnosis and require two or more lab abnormalities consistent with TLS (hyperuricemia, hyperkalemia, hyperphosphatemia, hypocalcemia) and at least one clinical feature (AKI, cardiac arrhythmia, seizure) within 7 days of chemotherapy. The patient described here met all lab criteria and kidney injury was present. Treatment consists of aggressive IV hydration, shifting potassium, rasburicase to aid in uric acid metabolism, and dialysis.

Lurbinectedin is a chemotherapeutic that was approved in 2020 as a second line agent for treating metastatic SCNEC. In the 12 months following FDA approval, 6 cases of Lurbinectedin-associated TLS were identified. Here, we described a rare case of TLS in SCNEC caused by Lurbinectedin. Focus should be on early diagnosis and aggressive management.

Abstract #24 Malignant Peritoneal Mesothelioma in Young Adult

Dr. Breanna Carlson - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Cody Due - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Mesothelioma is a malignancy of the serosal membrane. The most common location for mesothelioma is in the pleura and the second most common is in the peritoneum (7-30% of cases). This malignancy occurs from inhaled or ingested toxic substances such as asbestos. Malignant peritoneal mesothelioma clinically presents as diffuse abdominal pain, ascites, night sweats, and weight loss. CT is accepted as the first line imaging modality and shows a heterogeneous, solid, soft tissue mass or a thickening of the omentum. The 5-year survival rate for this peritoneal malignancy with treatment is 47%.

Case Description

21 year old male with a history of anxiety, depression disorder, and family history of colon polyps presented to the Emergency Department for abdominal pain and hematuria. He stated that the abdominal pain has been intermittent for four months. He noted a seven-pound weight loss in the past three months, and hematuria two days ago. The patient appeared ill and vital signs showed tachycardia. Physical exam was noted for lower abdominal tenderness. Results showed elevated liver enzymes, elevated alkaline phosphatase, and hematuria on urinalysis. CT abdomen and pelvis noted small to moderate ascites with omental nodularity and a large pelvis mass measuring 8.0 x 9.7cm with colon wall thickening. The patient was admitted to the Intensive Care Unit due to progressive hypotension and suspected sepsis. Biopsy of the pelvis mass supported the final diagnosis of malignant peritoneal mesothelioma. The patient stayed in the hospital for two weeks until his vital signs stabilized. He was discharged with close follow up with oncology at a cancer treatment center.

Discussion/Conclusion

Peritoneal Mesothelioma in a young adult is quite rare. This case demonstrated that abdominal pain in a young adult should still carry a wide differential, especially when adjunct symptoms include hematuria and weight loss. Gathering history is pertinent to perform a thorough workup in the ED. In Peritoneal Mesothelioma, symptoms can be very vague. Abdominal distension seems to be the most common complaint (30-80%). He presented with the second most common complaint, abdominal pain. The average time of diagnosis from initial onset of symptoms is 4-6 months. Without treatment, median survival is up to 12 months from time of diagnosis. The most effective mesothelioma chemotherapy is HIPEC (hyperthermic intraperitoneal chemotherapy). The patient in this case was seen by a cancer treatment center and was scheduled to start HIPEC.

Abstract #49 Bilateral Congenital Internal Carotid Agenesis Presenting with Stroke-like Symptoms

Dr. Noor Ahmed – OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Christoph Schieche – OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Absence of the internal carotid artery is a rare congenital anomaly that encompasses agenesis, aplasia, and hypoplasia and occurs in less than 0.01% of the population. Approximately 100 cases have been reported in the literature. Although many cases remain asymptomatic and go undetected due to collateral circulation, patients may present with headache, seizures, or transient ischemic attacks (TIA). The most common type of collateral flow is through the Circle of Willis. Aneurysms have also been reported to be associated with this anomaly. This case highlights a patient with bilateral internal carotid artery (ICA) agenesis presenting with TIA symptoms and headache.

Case Description

A 51 year-old male presented to the emergency department with complaints of intermittent expressive aphasia and dysarthria that started while moving his neck significantly while working underneath a sink. He also had a left-sided headache that resolved prior to arrival. He reported intermittent neck tension for the past 3 weeks and left foot numbness 1 week ago. Past medical history include poorly controlled hypertension and diabetes. Vital signs were stable except for a blood pressure of 197/105. On physical exam, he had expressive aphasia and dysarthria without other abnormal findings. Patient underwent emergent CT head and CT angiogram of the head/neck. These indicated acute/subacute ischemia of the right posterior frontal and parietal lobes and congenital absence of the internal carotid arteries. Collateral flow was posterior, but the patient also had complete left vertebral and partial right vertebral occlusion. He was not a candidate for thrombolytic therapy (stroke scale < 2) and was admitted to neurology service. He received conservative management with aspirin, Plavix, Atorvastatin, and blood pressure control. He was discharged with neurology follow-up. Over the next 1.5 years, he reported posterior headache, paresthesias, and positional vertigo. Modified Rankin score was 1, but the patient was unable to return to work.

Discussion/Conclusion

This rare anomaly should be considered in patients presenting with chronic symptoms resembling sporadic TIAs. In this case, the patient's congenital ICA agenesis and acquired left vertebral and partial right vertebral artery stenosis likely caused by aspects of lifestyle and medication compliance meant his entire cerebral circulation was supplied by his right vertebral artery. This lead to his delayed presentation with TIA. Screen these patients with angiography to evaluate collateral circulation since they are at increased risk for stroke/thromboembolic disease; emboli in one cerebral hemisphere may be explained by atherosclerosis in the contralateral common carotid or vertebrobasilar system.

Abstract #50 Vertebral Artery Dissection caused by Postpartum Preeclampsia

Dr. Danielle Miller - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Eric Lee - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Hypertensive disorders are associated with vascular complications including stroke and arterial dissection. However, vertebral artery dissection in the setting of preeclampsia is rare. Preeclampsia is a multisystem disorder characterized by severe hypertension along with proteinuria or other end-organ dysfunction. The late preterm or postpartum periods are associated with pre-eclampsia. Arterial dissection occurs when the layers of the wall separate creating a false lumen where blood can collect within the vessel wall. Dissection can have a variety of presentations including localized pain (most common), stroke-like symptoms, or Horner syndrome. Vertebral artery dissections are most commonly caused by mild trauma such as cervical manipulation, sneezing, or childbirth. Conditions increasing the risk for dissection include connective tissue disorders, hypertension, and smoking.

Case Description

A 37-year-old female presented to the emergency department for a headache. The headache was sudden in onset five days ago. Pain was localized to the right side of her neck, radiating toward her occiput. She was 10 days postpartum and speculated that her headache may be related to an epidural that she had. She had been under significant stress and not sleeping well as her baby had been in the NICU. She was noted to be hypertensive with systolic pressures over 200 on arrival, and she had never been hypertensive before. CTA of the head and neck showed findings consistent with dissection of the V3 segment of the right vertebral artery. Consistently elevated blood pressures with persistent headache are concerning for preeclampsia despite absence of proteinuria. The patient was treated with magnesium for preeclampsia and blood pressures were controlled with labetalol and nicardipine. She was evaluated by neurology who recommended daily aspirin therapy for 3 months followed by repeat CTA. She was discharged home from the hospital after four days.

Discussion/Conclusion

This case highlights the importance of considering a wide differential including rare life-threatening diagnoses even in young, otherwise healthy patients. This patient presented with what appeared to be nonspecific headache with normal neurologic exam. Her vertebral artery dissection was likely caused by severe hypertension in the context of late-onset preeclampsia. Clinicians should maintain a high index of suspicion for dissection in postpartum patients with hypertension and headache.

Abstract #59 Early Presentation of Necrotizing Fasciitis

Dr. Joseph Carter – OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Eric Lee - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. William Gray - Green Country Emergency Physicians

Introduction

Necrotizing soft tissue infections (NSTIs) are rapidly developing infections targeting fascia, muscle and subcutaneous tissue. These infections are associated with widespread tissue destruction, end-organ failure and high mortality. One of the hallmark features of NSTI's is the rate of spread, up to one inch of spread per hour, drastically raising mortality rates. Because this is a surgical diagnosis, early surgical intervention along with antibiotic therapy is key to improved outcomes.

Case Description

A 32-year-old male recently released from Jail earlier that same day presents with hallucinations. Per a friend's report, he had a history of polysubstance abuse and was withdrawing from Percocet. On arrival, the patient was found to be tachycardic with heart rates greater than 170, tachypneic, hypertensive, diaphoretic and febrile. The patient was profoundly altered and noted to only mutter incomprehensible sounds. Physical exam revealed a 15cm diameter area of erythema, induration and scattered bullae on the medial aspect of his left distal thigh. Several doses of Ativan were given with improvement in the patient's agitation however minimal decrease in the patient's heart rate and the patient was intubated for airway protection and started on Propofol. Bedside X-ray obtained for evaluation of gas formation in his leg wound was negative. The patient was started immediately on empiric antibiotics for possible NSTIs including Vancomycin, Zosyn, and Clindamycin as well as 30cc/kg IV fluids. The patient was taken for CT imaging which showed evidence of cellulitis of his leg, no abscess or gas, and a negative head/chest/abdomen scan. Labs obtained showed CK of 5,000, AST 1200, Creatinine 3.16 and an INR of 2.2. The patient was admitted to the ICU for continued management. Over the course of his stay, the patient developed worsening rhabdomyolysis and end-organ damage with CK levels exceeding the upper limit of measurement of 85,000 that afternoon. The patient was placed on dialysis and required the use of 4 vasopressors for BP control. The patient was eventually taken for debridement at which time a 35 x 25 cm area of necrotic tissue was removed. Cultures grew out Group A Streptococcal.

Discussion/Conclusion

NSTI's are aggressive infections with delays in surgical management increasing mortality. The diagnosis can be challenging in early infection however is critical to improved outcomes. This is made more difficult in GAS infections which do not typically produce gas. Here we present the importance of having a high clinical suspicion for such infections in the early stages.

Abstract #68 Bacteremia Following Alternative Therapy for Pancreatic Cancer

Dr. Austin Gaby - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Brian Milman - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Nearly 40% of Americans believe that alternative therapies can cure cancer. The use of alternative and complimentary therapy for cancer has increased in the United States in recent years. William Coley is credited with being the father of immunotherapy. In 1891, he began injecting cancer patients with streptococcal organisms with the intention of shrinking tumor size. While this is no longer a conventional treatment, Coley's shot (inactive strep and serratia) can be obtained at some alternative therapy centers.

Case Description

A 39-year-old female with history of pancreatic cancer with metastasis to liver presented to the ED with 4 days of fever. Patient had recently returned from a one-month trip to Mexico seeking alternative therapy for her malignancy consisting of Apatone (vitamin C and K3 concentrate), Coley's shot (solution of heat-killed streptococcal organism and Serratia marcescens), and GcMAF shot. On presentation, she endorsed headache and generalized malaise, but was afebrile. Physical exam revealed an ill-appearing patient with dry mucous membranes. Laboratory evaluation showed normal cell counts, electrolytes, and organ function. Urine specimen did not show infection. Chest x-ray was suggestive of pneumonia.

While awaiting results of workup she became febrile and altered, then subsequently became tachypneic and hypoxic prompting further radiologic testing. CT of the chest identified bilateral segmental/subsegmental pulmonary emboli without evidence of heart strain. Her blood pressure was transiently responsive to fluid resuscitation. Patient was ultimately treated with crystalloid, antibiotics, anticoagulant, vasopressors, analgesics, antipyretics and transferred to the ICU. Blood cultures grew Serratia, and she was treated accordingly and returned to baseline in a few days. Patient was discharged home after a 9 day stay with continuation of antibiotics, anticoagulation, and close follow up.

Discussion/Conclusion

Bacteremia can be a common finding in patients admitted to the hospital for infection. Here, we present a rare case of iatrogenic bacteremia following administration of Coley's shot in Mexico. This case is an important reminder of the importance of thorough history taking. Investigating medications, vitamins, herbal therapies, home remedies, and any alternative or complimentary treatments can aid in appropriate diagnosis and management of patients.

Abstract #78 Transient global amnesia or cerebral vascular accident?

Dr. Jasmine Washington - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Christoph Schieche – OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Transient global amnesia (TGA) is the sudden onset of acute amnesia (anterograde or retrograde) that does not include an altered level of consciousness or cognitive impairment. The symptom also resolves within 24 hours and there are usually no known long-term sequelae. Recently, diffusion-weighted imaging has been used to attempt to define a cause for the symptom, however, most literature will only define TGA as a symptom without a cause. Literature has also tried to distinguish clinical clues to identify TGA from amnesia caused by ischemic strokes. Diffusion-weighted imaging is the best tool the medical community has for confirming ischemic events in the brain, however, this technology is not always available immediately in the emergency department.

Case Description

A 51-year-old male with no known past medical history presented to the emergency department after he was found wandering around a truck stop, obviously confused according to bystanders. Upon arrival at the emergency department, the patient cannot recall how he arrived at the truck stop and has no memory of driving his vehicle to the location. He is awake, alert, and able to answer all interview questions appropriately. He has no focal neurologic deficits on initial examination nor on subsequent examinations in the emergency department. The patient's non-contrast CT scan of the brain revealed an acute right-sided MCA distribution infarct. Neurology recommendations were followed by emergency department staff and the patient was appropriately admitted to the hospital for further care. Later in the patient's hospital course, an MRI of the brain was done, and the patient had multiple infarcts including right basal ganglia, caudate nucleus, left parietal lobe, and right front lobe infarcts.

Discussion/Conclusion

Patients often present to the emergency department with vague symptoms that seem to resolve prior to presentation. Deciding whether to obtain a certain study on a patient requires a combination of symptom recognition and clinical suspicion for a certain emergent disease process. Without a positive finding on this patient's CT scan, I do not believe he would have received an MRI later in his hospital course. Amnesia in the absence of other clinical signs and symptoms of an acute ischemic cerebral event is rare. However, this and other case reports may be a sign that we should lower the threshold for performing diffusion-weighted imaging in acute amnesia.

Abstract #88 The Lazarus Effect: A Severe Case of Infection and Polypharmacy

Dr. John Hiett - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Brian Milman - OU-TU School of Community Medicine, Department of Emergency Medicine

Introduction

Urosepsis and polypharmacy are both well-documented etiologies of altered mentation. This case highlights severe altered mentation secondary to these processes that resulted in withdrawal of care in the emergency department, followed by full recovery and discharge from the hospital in little more than a week.

Case Description

A 51-year-old female presented to the emergency department with altered mentation. Her husband reported she was behaving normally before going to sleep, and he was unable to awaken her this morning. EMS was called and the patient was found obtunded with poor airway protection . She has DNR on file after previous CVA, but husband rescinded the DNR and the patient was intubated in the field. Per husband, patient takes multiple sedating medications including oxycodone, gabapentin, and tizanidine. No response to naloxone by EMS. On arrival to the ED, she was tachycardic, intubated, and had a fixed left-upward gaze and dilated pupils which were minimally responsive. The patient exhibited no gag reflex or cough without sedation.

CT imaging of the head was negative for acute hemorrhage. Lab work demonstrated acute kidney injury, elevated lactic acid, and a UTI. The patient was given antibiotics and fluid resuscitation. Given physical exam findings and previous DNR status, a decision was made to change patient back to DNR status after family discussion. The patient's husband stated that she would not want ventilator assistance, and she was extubated to room air and given IV opiate for comfort. She remained vitally stable in the ED with normal respiratory effort post-extubation, despite expected clinical deterioration with evidence of brain death on exam. She was admitted to ICU and had gradual improvement of mental status with antibiotic therapy and withdrawal of home medications. She had increased responsiveness by day two, tolerated oral intake on day three, and began physical therapy on day five. She was discharged from the hospital with baseline mental status and no long-term physical sequelae on day eight.

Discussion/Conclusion

This case demonstrates the severity of altered mentation that can result from a diagnosis as simple as UTI when combined with sedating medications. This patient demonstrated signs of brain death on physical exam and had withdrawal of ventilatory assistance which was thought to be futile. She improved significantly with antibiotic therapies and removal of home medications. Review of past medical history and home medications remains a vital part of emergency care, and should always be considered when treating patients with altered mentation.

Family and Community Medicine

Abstract #62 Semaglutide-Induced Allodynia: A Rare Dose-Dependent Reaction

Dr. Molly Martin - OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Jesse Richards - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Since the first was approved in 2005, the use of GLP-1 receptor agonists (GLP-1s) for the management of type 2 diabetes mellitus and weight has steadily increased. In 2013, there were 4.2 million prescriptions written for GLP-1s, and by 2020 the annual prescriptions had increased to 16.5 million. The primary adverse reactions to GLP-1s reported in clinical trials and post-marketing monitoring include nausea, vomiting, diarrhea, and abdominal pain. Aside from hypersensitivity reactions, injection site reactions, and headaches, there have been no dermatologic or neurologic adverse reactions noted in the formal literature. This report details a case of allodynia, a rare adverse reaction to injectable semaglutide.

Case Description

A 51-year-old female, with diagnoses including overweight and hypercholesterolemia, reported that she had developed a “sunburn” sensation which began at her right ear and descended to her back and right arm. She had been prescribed injectable semaglutide two months prior, starting at 0.25 mg weekly and increasing stepwise to 1.0 mg weekly. On the day she first administered the 1.0 mg dose, she experienced a burning sensation with any light touch along the affected area. She had no associated rashes or other skin changes. Pain did not follow a dermatomal pattern and was not near her injection site. Symptoms were most severe 1-3 days after semaglutide administration and resolved within 5-7 days. Laboratory work-up, including electrolytes, CBC, and B vitamin levels, was all within normal limits. Semaglutide was decreased to last tolerable dose, 0.5 mg weekly, without recurrence of symptoms

Discussion/Conclusion

While allodynia as an adverse reaction to GLP-1 receptor antagonists has not been reported in the formal literature, there are patients reporting this on unofficial sources online. There is a known link between the GLP-1 axis and chronic pain, and there are studies exploring the use of GLP-1 receptor agonists for treating neuropathy, migraines, and osteoarthritis. Allodynia as an adverse reaction to these medications may, then, be a paradoxical reaction, but more research would be necessary to explore this theory.GLP-1 receptor agonists are an exciting newer class of medications for managing diabetes and obesity, and primary care physicians continue to prescribe more of them. Since they are newer medications, it is important to note and report adverse reactions. It is also important to note that an adverse reaction, if it is not life-threatening, can often be managed with reducing the dose, rather than stopping the medication.

Abstract #64 Non-Convulsive Status Epilepticus in an ESRD Patient with Altered Mental Status

Dr. Morgan Jackson – OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Jason Deck – OU-TU School of Community Medicine, Department of Family and Community Medicine

Introduction

Status epilepticus is defined as seizure activity lasting more than five minutes, or two or more seizures occurring within a five-minute period without recovery in-between. Non-convulsive status epilepticus (NSCE) is a form of status epilepticus where seizure activity occurs without motor signs, and thus must be diagnosed with an EEG. Clinicians must have enough clinical suspicion to order this specialized test, and consequently NSCE can be a difficult diagnosis to make. We present a case of NSCE in a patient with altered mental status.

Case Description

A 51-year-old female with a history of ESRD and known epilepsy presented to the emergency department after a witnessed tonic-clonic seizure. While in the ED, she was post-ictal and hypoxic. As a part of her initial workup, a chest X-ray was obtained that appeared consistent with fluid overload. Labs obtained at that time, including elevated brain natriuretic peptide (2814 pg/ml) and elevated creatinine (6 mg/dl), were also consistent with fluid overload, secondary to suspected missed dialysis. She was treated with furosemide and dialysis. Following this urgent management of her fluid overload, however, the patient did not improve in mental status as expected. She became more alert but was frequently only oriented to self. She also was quite irritable and combative with hospital staff. Neurology was consulted for recommendations for management of her seizure disorder. An EEG was ordered which was read as “markedly abnormal EEG with subclinical status epilepticus”. Given the patient’s lack of motor symptoms, the diagnosis of NSCE was made. Neurology recommended changing the patient’s antiepileptic regimen to divalproex sodium 500mg BID from levetiracetam 1000mg BID. Several days later, her mentation returned to her baseline.

Discussion/Conclusion

The initial workup and treatment of this patient was focused largely on her fluid status, given that she is dialysis-dependent. Even though she also had a known history of epilepsy, the absence of overt tonic-clonic seizure activity directed the differential away from neurologic sources. An EEG revealed subclinical status epilepticus. Ultimately this resolved with a simple medication change. In patients with pre-existing epilepsy mortality is low in NCSE, however, delay in diagnosis does prolong hospital stays and increases the risk of long-term poor outcomes.

This case highlights the importance of considering NCSE in the differential for altered patients with epilepsy. Clinicians should keep a low threshold for ordering an EEG in these cases.

Abstract #66 Helicobacter pylori Gastritis Mimicking ARFID in a Malnourished Adolescent Refugee

Dr. Hayden Elliott – OU-TU School of Community Medicine, Department of Family and Community Medicine
Dr. Jennifer Weakley – OU-TU School of Community Medicine, Department of Family and Community Medicine

Introduction

Helicobacter pylori is the most common chronic bacterial infection in humans, affecting approximately 50% of the world's population. Most patients infected with H. pylori develop chronic gastritis, a slow progressing irritation of the stomach lining that can cause indigestion, dyspepsia, early satiety, and peptic ulcer disease. Avoidant restrictive food intake disorder (ARFID) is an eating disorder characterized by restrictive food intake that causes persistent failure to meet nutritional needs.

Case Description

A 15-year-old male presented for a well-child check accompanied by his dad and social worker. Patient's family were Central Asian refugees who immigrated to Tulsa. On presentation, the family was concerned the patient was depressed and had a reduced appetite. Patient was slow to respond to questioning and exhibited anhedonia when asked about the activities he enjoyed. On exam, he was underweight, in the 0 percentile at 90.8lbs. Patient described being uninterested in food and having generalized abdominal pain that prevented him from eating. He was started on famotidine for GERD, fluoxetine for major depression, and a referral was placed for counseling. High calorie foods and meal replacement shakes were recommended. Patient was scheduled for follow-up in 1 month due to difficulty with transportation.

At the follow up appointment, the patient weighed 89.3lbs. H. pylori was suspected, but not tested for due to difficulty obtaining the test and social factors. Adolescent Medicine was contacted and determined the patient needed to be transferred to OUHSC Oklahoma City for inpatient management. Patient was admitted for 5 weeks where he consumed a very high calorie diet to gain weight. He was diagnosed with H. pylori while inpatient and treated using quadruple therapy. Patient received regular visits from a therapist and continued to take his SSRI. Inpatient team reported drastic increase in dietary intake after H. pylori treatment.

Discussion/Conclusion

ARFID was originally suspected in this case by the PCP and admitting team. Patient had endured several recent traumas and did meet criteria for major depressive disorder. After the patient was admitted and treated for H. pylori, it appears the infection was the major cause of his poor weight gain, excluding the diagnosis of ARFID. ARFID cannot be diagnosed if a medical condition better explains symptoms.

H. pylori commonly presents as worsening dyspepsia that is often not treatment-responsive, but it can vary greatly in presentation. Before a patient is diagnosed with an eating disorder all medical causes of malnourishment should be excluded.

Abstract #74 Implementation of Wound Care to Treat Warfarin-Induced Calciphylaxis

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Mrs. Lee Luetkemeyer - OU-TU School of Community Medicine, Department of Family and Community Medicine, Physician Assistant Program
Dr. James Beebe - Utica Park Clinic

Introduction
Calciphylaxis is a rare disorder that can present in patients with end-stage renal disease. Patients who develop calciphylaxis present with skin necrosis, which is due to calcification of arterioles. Morbidity and mortality rates are high and there are currently no approved treatments.

Case Description
A 73-year-old female with chronic kidney disease (CKD) received a kidney transplant which later necrosed and was removed. Renal biopsy showed antiphospholipid antibody syndrome as the cause of transplant failure. Warfarin was subsequently prescribed. One month later, she was evaluated for a non-healing wound. This was initially thought to be a deep vein thrombosis (DVT) because she presented with pain. Upon arrival to the ED, she was complaining of hard nodules and ecchymoses under the skin in her calf, along with leg pain and a non-healing wound. A DVT was not seen on ultrasound, and she was instructed to continue taking Warfarin as prescribed. Over the next year, she was referred to specialists who also thought her wounds were evidence of venous insufficiency in the setting of normal ankle-brachial-indexes (ABI's).

One and a half years after her original wound appeared, she went to the ED again who confirmed normal arterial and venous studies and ruled out calciphylaxis because it did not present within four to five days of initiating Warfarin therapy. One week later, the patient presented to wound care for evaluation of multiple infected and necrotic wounds. The patient was subsequently diagnosed with calciphylaxis. She was started on sodium thiophosphate, a proposed treatment for calciphylaxis, and taken off Warfarin. In conjunction with this treatment, she received skin grafts to promote skin healing. Following this regimen, her wounds healed, and no new wounds appeared after stopping Warfarin.

Discussion/Conclusion
This case illustrates the difficulties of diagnosing calciphylaxis due to its rarity and similar appearance to many other dermatological processes. Although rare, it is always important to consider calciphylaxis as a potential adverse effect of Warfarin due to it being one of the most commonly prescribed anticoagulants. Recognizing this disease and quickly acting to remove the offending agent can save patients from risks of infection and limb loss.

Abstract #86 Initial Presentation of Primary Sclerosing Cholangitis

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Dr. Jason Deck – OU-TU School of Community Medicine, Department of Family and Community Medicine

Introduction

Primary sclerosing cholangitis (PSC) is a chronic cholestatic liver disease characterized by inflammation, fibrosis, progressive narrowing, and destruction of the bile ducts. The etiology of PSC is not clearly known, but it may have a genetic or autoimmune component. It is more commonly found in middle-aged patients with inflammatory bowel disease. This study describes PSC in a 35-year-old male.

Case Description

A 35-year-old male with a past medical history of hypertension presented to establish care. He was asymptomatic and mentioned having been told his liver enzymes were elevated 1 to 2 years ago, but did not follow up. CMP was ordered and was significant for total bilirubin of 2.0 mg/dL, alkaline phosphatase 355 U/L, AST 64 U/L, and ALT 100 U/L. Patient was referred for right upper quadrant ultrasound because of his elevated liver enzymes, which showed intra and extrahepatic biliary dilatation. A MRI abdomen with and without contrast and MRCP were recommended and revealed "intrahepatic ductal dilation with beaded appearance of the common bile duct and focal narrowing near the ampulla concerning for primary cholangitis versus cholangiocarcinoma." Patient was notified and advised to present to the emergency department for emergent gastroenterology consult and ERCP. During admission, patient was diagnosed with primary sclerosing cholangitis and referred to OU OKC transplant team for potential liver transplant.

Discussion/Conclusion

About 50% of patients who are eventually diagnosed with primary sclerosing cholangitis initially present without symptoms and the only abnormal findings are seen on serum liver function tests. Presenting symptoms may include pruritus, fatigue, weight loss, or abdominal pain. Common lab findings are ALT elevated 2 to 3 times above the normal limit, elevated GGT, or elevated alkaline phosphatase. Ultrasound may be helpful in evaluating for PSC but is not diagnostic. MRCP is the recommended diagnostic imaging method. Newly diagnosed patients should be referred to gastroenterology as soon as possible and undergo colonoscopy to evaluate for inflammatory bowel disease which is strongly associated with PSC.

One of the most important aspects of primary care is performing a thorough history on all new patients, even when they have no presenting symptoms or known significant medical history. This case exemplifies the opportunity primary care physicians have to detect and screen for potentially serious medical conditions before major complications are encountered and to provide these patients with timely care.

Internal Medicine

Abstract #14 Cytomegalovirus and Critical Illness: No Longer the Disease Solely of Chronic Immunosuppression.

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Dr. Brandon Quinn - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Mallory Hall - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction
Cytomegalovirus (CMV) infection is most associated with states of chronic immunosuppression. However, there are a few cases where it breaks this stereotype and reactivation with varying degrees of severity can be seen in critically ill immunocompetent patients, specifically those with sepsis as will be demonstrated in this case report.

Case Description
Here we present a 26-year-old male who was admitted to the hospital for acute encephalopathy, hyperthermia, and acute respiratory failure attributed to amphetamine use. In addition to multiple other complicating factors including sepsis from bacteremia, shock liver, and disseminated intravascular coagulation (DIC), the patient began to experience significant, persistent hematochezia days after resolution of DIC. The first colonoscopy performed visualized only small rectal ulcers. Twenty-two days after onset of hematochezia, a second colonoscopy showed evidence of ileocecal inflammation and ulceration with brisk bleeding. Biopsies were taken and cauterization completed. Pathology would later indicate CMV colitis, and a course of ganciclovir was initiated with resolution of symptoms and infection following completion of therapy. The remaining ailments were treated, and the patient was successfully discharged from the hospital.

Discussion/Conclusion
This case demonstrates that CMV reactivation should be considered more frequently in critically ill patients with suspicious symptomatology that fail to improve in a reasonable time frame or deteriorate with appropriate therapies. The incidence of these reactivation infections, in a study performed in China in 2018, was shown to be about 18.3% in seropositive patients admitted to the intensive care unit. Previous studies have indicated reactivation in anywhere from 9-71% of patients. This population of patients, unfortunately, often have more complicated hospital stays when compared with their counterparts, requiring long-term admissions, extended periods spent on a ventilator, and even increased all-cause mortality. Due to the increasing incidence of these infections, the need for CMV prophylaxis in this population has been discussed and at least one clinical trial, GRAIL^3 trial, is in progress to determine the efficacy of prophylaxis. Unfortunately, awareness of this disease process appears to be low, diagnosis is often made late, and both prophylaxis and treatment regimens have risk for significant side effects.

Abstract #16 Autoimmune Meningitis

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Dr. Nathan Finch - OU-TU School of Community Medicine, Department of Emergency Medicine
Dr. Mallory Hall - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Lupus Cerebritis is a rare form of aseptic meningitis caused by Systemic Lupus Erythematosus (SLE) which mimics bacterial meningitis. It is often classified within an umbrella of neuropsychiatric SLE disorders referred to as NPSLE. There are no specific markers, and thus NPSLE is a diagnosis of exclusion1. Incidence rates are uncertain, but 30-50% of patients with SLE experience NPSLE2 with much lower rates for Lupus cerebritis. The objective of this case report is to reduce diagnostic and treatment delays of Lupus cerebritis and NPSLE.

Case Description

A 38-year-old male presented to the ED with confusion, neck stiffness, headache, vomiting, and photophobia. He had worsening encephalopathy over the previous 3 days and fatigue following COVID infection several weeks prior. The patient was noted to have a malar rash, neck stiffness, and encephalopathy. Chart review noted a previous SLE diagnosis. The patient had a prior similar presentation resulting in a diagnosis of meningitis which improved with antibiotics and dexamethasone; no organism was isolated on LP. A broad differential was considered, including meningitis, intracranial hemorrhage, cerebral thrombosis, and toxic or autoimmune encephalopathy. Patient's CT head was unremarkable. A lumbar puncture performed resulted with clear CSF, 47 white blood cells per mm3 (37% neutrophils), glucose 36 mg/dL, and protein of 116 mg/dL. The patient was treated with ceftriaxone, vancomycin, and acyclovir. Unlike the prior presentation, dexamethasone was not given.

Despite treatment over a 10 day period, the patient continued to have fevers and fluctuations in mentation. Infectious etiology workup was negative including HSV, CMV, syphilis, cryptococcus, HIV, brucella and S. pneumoniae.

Autoimmune workup notable for ANA > 1:5120, anti-RNP A positive, anti-Smith positive, SSA Ro52 positive. After discussing the case with rheumatology, a presumed diagnosis of lupus cerebritis was made. The patient was treated with pulse dose steroids which resolved his symptoms.

Discussion/Conclusion

This case illustrates the complexities of diagnosing lupus cerebritis which often result in delayed treatment. The disease has the potential to be masked due to usage of dexamethasone in bacterial meningitis. In the initial presentation, the patient was given dexamethasone, which likely confounded treatment response for bacterial meningitis. Adding further complexity, the umbrella of diseases (NPSLE) are also often non-specific involving symptoms of seizures and psychosis, which can further delay diagnosis and prevent outpatient treatment. Recognizing the potential of NPSLE in patients with concerns for SLE is critical to preventing recurrent episodes.

Abstract #18 Schwann Lake: The Breathtaking Performance of a Pulmonary Schwannoma

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Dr. Stuart Jack - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Dru Albin - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

A pulmonary schwannoma is a type of benign tumor derived from a Schwann cell, which forms the myelin sheath around a peripheral nerve axon, and is associated with the pulmonary nerves innervating the bronchial smooth muscles and blood vessels. While schwannomas are relatively common, it is extremely rare to find one located within the lungs. It has been noted that they comprise less than 1% of tumors found in the pulmonary system.

Case Description

The patient in this case is a 59-year-old female with a history of asthma, who often presented with shortness of breath. She had been treated with limited success with standard albuterol, inhaled glucocorticoids, and a long-acting beta agonist inhaler. A chest x-ray first suggested a right middle lobe consolidation or atelectasis. A subsequent chest CT without contrast showed a narrowing of the bronchus supplying the right middle lobe and associated distal atelectasis suspicious for an obstructive lesion. A bronchoscopy with biopsies of the tissue at the location of the obstructed right middle lobe bronchus showed histological evidence suggesting a subepithelial bland spindle cell neoplasm exhibiting neural differentiation. The biopsy also displayed proliferation of spindle cells with wavy nuclei and were arranged in interlacing fascicles such as a schwannoma would appear microscopically. These spindle cells stained strongly with S100. Due to the locally encapsulated nature of schwannomas as well as the low likelihood of recurrence, surgical resection is first-line treatment and is usually sufficient. The patient in this case is currently pursuing treatment options for her symptomatic pulmonary schwannoma.

Discussion/Conclusion

Since schwannomas do not destroy the nerve, no pain nor distinctive symptoms are caused, and the symptoms are likely to be due to the mass effect of the tumor if the symptoms even appear at all. This case highlights the limitations of imaging and the advantages of bronchoscopy in diagnosing the etiology of atelectasis and chronic dyspnea leading to the discovery of a pulmonary schwannoma in the patient.

Abstract #19 The Toxic Effects of Chronic Metronidazole Use

Dr. Matthew Greenwald - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Martina Jelley - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Everyone is aware of the common side effects of metronidazole such as nausea or diarrhea, but it is important to be aware that commonly used drugs like metronidazole can have serious side effects as well. While rare, seizures can be a manifestation of metronidazole toxicity.

Case Description

The patient is a 33-year-old female with history of PTSD, anxiety, domestic abuse, and chronic bacterial vaginosis, who presented with new-onset seizures. The patient had a one-year history of daily vaginal dosing of metronidazole for bacterial vaginosis. The dose was unclear, but she used an applicator that she would fill and insert without sterilizing between dosing. She also was taking an unknown oral dose twice a week for six weeks prior to admission.

Her seizures appeared to be tonic-clonic in nature, and she had no prior history of seizure activity. She was found by her mother prone in the bathtub. She was lethargic and confused for 30 minutes afterwards and had a second seizure, which was witnessed, in the emergency department. She had associated severe headache, nausea, vomiting, and ataxia. Initially she was given levetiracetam, but was switched to lacosamide due to potential behavioral side effects. The patient had unexplained 3/5 bilateral leg weakness that resolved on its own. She had a WBC of 24.3, a lactic acid of 19.1, an AST of 47, ALT of 108, CRP 7, UA had 1+ Hgb but no RBCs and was negative for infection, CPK 8472. She was afebrile, hypertensive, and had a petechial rash on her shoulders. Head CT Venography ruled out superior sagittal thrombus. Brain MRI showed no masses, infarction, or hemorrhage. EEG showed no findings consistent with epilepsy but had intermittent periods of high amplitude delta activity in the frontal leads consistent with Frontal Intermittent Rhythmic Delta Activity (FIRDA). Neurology was consulted and felt that "FIRDA" was best explained by her excessive metronidazole use. The patient's metronidazole was stopped, and lacosamide was continued indefinitely. She has had no seizure activity reported in the eight months since. The final diagnosis for her seizure activity was chronic metronidazole toxicity.

Discussion/Conclusion

The EEG with "FIRDA" is typically indicative of toxic-metabolic disturbances. It can also be associated with midline structural lesions. Metronidazole was deemed the most likely culprit causing this. Unprovoked convulsive seizures, encephalopathy, and cerebellar signs are all possible rare manifestations of metronidazole toxicity. This case demonstrates the possibility of severe effects of overuse of a commonly used antibiotic.

Abstract #27 AMA-negative Primary Biliary Cholangitis: An uncommon presentation of an uncommon disease

Dr. Brock Orme - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Ryan Yarnall - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Primary Biliary Cholangitis (PBC) is an autoimmune liver disease that leads to intrahepatic bile duct inflammation. Chronic damage results in cholestasis and potentially cirrhosis. The prevalence of PBC is estimated at 21 per 100,000 individuals. PBC is more prevalent in women with a ratio of 9:1. Typical symptoms include fatigue, pruritus, mild cognitive impairment, and right upper quadrant (RUQ) pain. The serological presence of antimitochondrial antibodies (AMA) is present in 90-95% of patients and can often be detected before the patient becomes symptomatic.

Case Description

A 66-year-old woman presented to the clinic with RUQ pain and abdominal distention for two weeks. Labs showed ALP 365 U/L, AST 86 U/L, ALT 90 U/L. A RUQ ultrasound revealed gallstones and a mildly dilated hepatic bile duct. Patient underwent a laparoscopic cholecystectomy with brief symptom resolution following surgery. However, abdominal pain returned a few months later. Lab work revealed ALP 590 U/L, AST 88 U/L, ALT 90 U/L, GGT 914 U/L. AMA was tested and resulted negative. She was taken off her statin without significant improvement and began to experience pruritus, memory loss, and worsening RUQ pain prompting a referral to gastroenterology. An AMA antibody was retested and returned mildly positive at 1:40. Patient underwent liver biopsy confirming PBC. Patient began treatment with ursodeoxycholic acid with improvement of lab markers and symptoms. Of note, she had elevated cholesterol levels throughout this workup with her most significant elevations being total cholesterol 328, LDL 219, HDL 70.

Discussion/Conclusion

This case highlights the need for clinicians to understand the less common presentation of initial AMA-negative PBC. An estimated 5-10% of PBC cases can be negative at time of clinical presentation and may later become positive. This understanding ensures a timely and accurate diagnosis. Liver biopsy is often used for diagnosis in these cases. Current treatment guidelines recommend appropriate vaccinations, alcohol abstinence, and ursodeoxycholic acid as first line therapy. PBC may progress to Cirrhosis if left untreated. This case also highlights the elevated cholesterol levels often seen in PBC. This is thought to be in part due to cholestasis preventing bile acids from absorbing cholesterol in the intestine, leading to increased production and decreased clearance of cholesterol by the liver. The overall effects of elevated cholesterol on cardiovascular outcomes in patients with PBC is unknown.

Abstract #28 Idiopathic Pulmonary Fibrosis Presenting with Concurrent Hypereosinophilic Syndrome

Dr. Anam Ashraf – OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Weyman Lam - Warren Clinic Allergy and Immunology

Introduction

Hypereosinophilic Syndromes include Idiopathic Hypereosinophilic Syndrome (IHES) which is defined by >1500 eosinophils/µL and multiple end-organ involvement: heart, lungs, and skin. Interleukin-5 regulates eosinophil production, activation, and tissue recruitment and, thus, may be involved in the pathogenesis of HES. Mepolizumab is a monoclonal antibody which acts through IL-5 antagonism to reduce eosinophilia and is FDA approved for IHES. Idiopathic pulmonary fibrosis (IPF) is an interstitial lung disease characterized by worsening dyspnea, decline in forced vital capacity, and deterioration in patients' quality of life. Nintedanib, an intracellular inhibitor of tyrosine kinases is FDA approved for IPF. The association between IPF and IHES is not well defined.

Case Description

A 70-year-old male with recurrent pneumonia and chronic cough was diagnosed with IPF. His IPF was intermittently managed with glucocorticoids, inhalers, and 3 liters of oxygen. On physical exam, the patient appeared fatigue, had large pink inferior turbinates, exhibited shallow breaths with coarse breath sounds. A non-contrast CT chest was performed which revealed bilateral lower zone predominant, peripherally predominant ground-glass opacities and fine reticular opacities with traction bronchiectasis and bronchiolectasis. He further underwent a high-resolution CT scan at National Jewish Health which showed similar pattern of underlying fibrosis with lower zone and peripherally predominant ground-glass and fine reticular opacities with traction bronchiectasis and bronchiolectasis. Incidentally, he was also found to have peripheral eosinophilia and met the criteria for IHES. Because of the persistent nature of the symptoms, a bronchoalveolar lavage was performed which revealed large portions of eosinophils. It was concluded that his fibrosis was predominantly an eosinophilic driven process. He was started on mepolizumab 300mg monthly for IHES and nintedanib 150mg twice daily for IPF. Consequently, his constant symptoms improved, and he was titrated to 1 liter of oxygen.

Discussion/Conclusion

We present a rare case of concurrent IHES with IPF. There is a need for research to evaluate the role of eosinophilia in the pathogenesis of pulmonary fibrosis.

Abstract #31 Pott's Puffy Tumor: Rare Infection of the Frontal Bone

Mrs. Isabella Loy - OU-TU School of Community Medicine
Dr. Robert Jackson - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Pott's Puffy Tumor (PPT) is a rare complication of acute frontal sinusitis that presents as a subperiosteal abscess and osteomyelitis of the frontal bone. While this condition is associated most often with children, the rarity of the complication and presentation within an adult makes this case unique.

Case Description

72-year-old with past medical history of chronic hypertension presented to evaluate new onset headaches and left periorbital swelling. Patient had history of recurrent bacterial sinusitis 1-2 times per year that had been treated before with oral antibiotics. At the time of the appointment, the patient was given dexamethasone, diphenhydramine, and doxycycline to treat suspected bacterial sinusitis. Patient experienced no improvement in 5 days. Patient was reevaluated with CT and CBC. Imaging revealed pre- and periorbital swelling of the soft tissues but no abscess. CBC revealed WBC count of 14,400. The patient was given amoxicillin-clavulanic acid to treat resistant bacterial sinusitis. One day later, they presented to urgent care due to worsening eye swelling such that they could not open their eye. They were then transferred to the emergency room where the patient mentioned their eye felt like it was bulging out, flashes of light in the affected eye, and new clear ocular discharge. Lab work showed worsening leukocytosis at 16,200 and CRP of 5.77. Repeat CT with contrast showed new bony erosion with defect of anterior inferior left frontal sinus suggesting osteomyelitis, and enhancing fluid collection with abscess formation extending from the bone measuring 2.3 X 2.1 X 2.8 cm. Fat stranding and inflammatory changes were also noted. Pott's Puffy Tumor diagnosis was made based on the pre-/post-septal cellulitis. ENT referral was placed, and recommended emergency surgery. Patient transferred to a capable facility and IV Vancomycin and Ampicillin-Sulbactam were initiated. Patient underwent left frontal sinus trepanation, debridement, and nasal endoscopy. Antibiotics were changed to sulfamethoxazole-trimethoprim after the abscess culture indicated Streptococcus intermedius infection. Patient was discharged on amoxicillin-clavulanic acid once stable.

Discussion/Conclusion

Although this complication is rare, it can still lead to devastating consequences if not treated promptly including meningitis, sinus thromboses, and orbital cellulitis. These may have occurred here if this patient had not been vigilant in seeking care when their condition did not improve. In summary, prevention and best prognosis is linked to early recognition and treatment, illustrating why it is important that providers are aware of rare complications and trained to reevaluate diagnoses when the patient does not improve.

Abstract #34 Renal Cell Carcinoma Associated Minimal Change Disease

Dr. Iman Chaudhry - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Pranay Kathuria - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Membranous nephropathy (MN) has been associated with solid tumor malignancies such as those of the kidneys, GI tract, prostrate, breast, lung and bladder. Such an association has not been seen with minimal change disease (MCD), which is typically associated with hematologic malignancies. The following is a rare case report on nephrotic syndrome secondary to renal cell carcinoma from MCD.

Case Description

A 79-year-old male with PMH of obesity, stage III chronic kidney disease, hypertension, borderline type II diabetes mellitus, OSA, hyperlipidemia, presented to his PCP with complaints of 4 months of lower extremity edema that had progressed to his upper extremities and his abdomen. His chemistry was largely unremarkable except for a BUN 36 and Cr 1.62, and albumin 2.4. Urinalysis showed +4 protein and +1 Hgb. 24-hour urine collect revealed 10.65 grams of protein. His ANA and hepatitis panel was negative. He had a normal light chain ratio and SPEP. Renal US showed a 10.4 cm mass in the lower pole of the right kidney concerning for malignancy. Pt was referred to nephrology clinic for further evaluation. We referred for a CT and to urology for renal biopsy. CT imaging revealed 11.5 cm mass in his right inferior kidney. The patient underwent a robotic partial right nephrectomy. Histopathology revealed a 14 cm diameter, type 1 papillary renal cell carcinoma that was limited to the kidney with no margins, along with minimal change disease, 2% glomerulosclerosis likely secondary to diabetes, moderately severe arteriosclerosis, and a 0.5 cm incidental papillary cortical adenoma. One-month post biopsy, labs showed improved kidney function with a BUN 33, Cr 1.79, GFR 35 and no protein on urinalysis. Two months post biopsy, kidney function remained stable, there was no protein seen on urinalysis and the patient's microalbumin/Cr was mildly elevated at 54 mg/gCr. It was decided that the patient did not need immunosuppression at this time and the patient was started on an ARB. The patient remains in remission from his MCD 3 years later. We suspect our patient's proteinuria was secondary to tumor-related cytokines affecting glomerular permeability and causing protein loss.

Discussion/Conclusion

Although MCD has been commonly described with hematologic malignancies, there may be an apparent link between solid tumors and MCD, as seen in this case. If patients with MCD are not responding to immunosuppressive therapy or continue to have active disease, it may be beneficial to screen for solid tumor malignancy.

Abstract #35 The Itch from the Gut

Dr. Iman Chaudhry - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Weyman Lam - Saint Francis Health System

Introduction

Chronic urticaria is the occurrence of wheals and/or angioedema that is daily or episodic for six or more weeks. The following is a case report of Helicobacter pylori associated urticaria.

Case Description

A 61-year-old female with past medical history of epilepsy, allergic rhinitis, and hypothyroidism presented to the allergy clinic with complaints of a chronic hives-like rash that had been resolving and reoccurring over the past seven weeks. The patient had seen her PCP and had been prescribed famotidine and fexofenadine which had provided some benefit initially but was no longer helping. On physical exam, the patient had erythematous, pruritic, palpable plaques in wheals and flares on her trunk and legs. She was diagnosed with chronic urticaria and started on methylprednisolone, cetirizine, famotidine, montelukast and hydroxyzine. Four weeks later, her symptoms remained uncontrolled. Patient reported waking up covered in hives in the morning, taking her medication regimen but then having the hives resurface. The patient was started on omalizumab injections at that visit and told to continue her existing medication regimen. Three months later, she reported minimal benefit with three injections with severe hives all over, including her face now. She was started on cyclosporine. At this point, we also started an infectious, immunodeficiency, and autoimmune work up including HIV, hepatitis panel, immunoglobulin levels, and checked a CBC and CMP. The patient had an unremarkable ANA, ANCA, and RF levels. Work up was negative with the exception of a mildly elevated tryptase level and low TSH but normal free T4. A H. pylori breath test was ordered and came back positive. She was started on clarithromycin, amoxicillin, and dexlansoprazole. Following the completion of H. pylori treatment, she reported marked improvement in her urticaria with very infrequent episodes. We suspect the patient's chronic urticaria was secondary to her H. pylori infection, as resolution of the infection, significantly improved her symptoms.

Discussion/Conclusion

Helicobacter pylori infection has been correlated with chronic urticaria. A meta-analysis of 1320 patients has shown a statistically significant difference in the presence of H. pylori between the control and urticaria group. It is unclear whether it's the eradication of the infection itself or the combination of antibiotics that improves the condition. In patients with refractory chronic urticaria who without improvement from histamine receptor blockers or IgE blocking agents, and in whom, other causes have been ruled out, it may be beneficial to test for H. pylori and if positive, to treat accordingly.

Abstract #38 A Case of Hepatic Encephalopathy within an Oklahoma Prison

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Introduction

This case study details the presentation of hepatic encephalopathy (HE) secondary to infection with hepatitis C virus (HCV) in a patient at a prison in Hominy, Oklahoma. HE refers to altered mental status due to a hepatic etiology such as cirrhosis from hepatitis or alcohol abuse. Aside from the underlying liver disease, HE is made serious in that patients with the disease—particularly those who are incarcerated in prison systems—may be left in vulnerable positions. Moreover, there are an estimated 3,000+ individuals in Oklahoma prisons with HCV, highlighting the importance of the early detection, treatment, and prevention of this disease to limit liver disease and its complications which include but are not limited to HE.

Case Description

A 58-year-old male with a previous medical history of hepatitis C presented with the chief complaint of altered mental status per his fellow inmates as well as prison staff.

During the encounter, the patient reported confusion and denied any other complaints. On exam, the patient was oriented only to person and time. Dermatological exam revealed spider angiomas across the upper chest and a lack of body hair on the lower extremities. Musculoskeletal exam revealed proximal muscle wasting as well as gynecomastia. Abdominal exam revealed ascites. Laboratory findings revealed infection with hepatitis C virus, hyperammonemia, thrombocytopenia, and transaminitis.

Treatment recommendations included 45 mL of lactulose two to four times daily to lower serum ammonia levels as well as 100 mg of spironolactone and 40 mg of furosemide daily to improve ascites. Further, increased protein intake and alcohol cessation were both recommended.

After three days of lactulose therapy, the patient's confusion improved such that he was fully alert and oriented, and the patient's ascites improved after diuretic therapy. While the patient's acute problems improved, in a patient with this level of liver cirrhosis—Child-Pugh class C—life expectancy is approximately one to three years.

Discussion/Conclusion

In the patient with liver cirrhosis, new-onset confusion should raise concern for HE. In already vulnerable populations such as those incarcerated in prison systems, care should be taken to protect individuals who may find themselves in an especially vulnerable position from HE. Education of prison staff regarding HE as well as close follow-up with patients at risk of developing HE should be considered; and patient care, including initiation of lactulose therapy, should be initiated promptly.

Abstract #40 Fulminant Multiple Sclerosis

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Introduction

Multiple sclerosis (MS) is described as a demyelinating process of the central nervous system. MS is an immune-mediated inflammatory response to the myelin sheath that ranges in severity of phenotype with fulminant MS, known as Marburg variant, being the most severe form of the disease. Once progression to fulminant MS occurs the expected duration for the patient's life decreases drastically.

Case Description

A 19-year-old female presented to the hospital with increasing gait abnormalities, vision changes, urinary retention, and dysphagia. She was evaluated by neurology approximately one month prior because of new onset gait abnormalities and bilateral tremors in her legs. At that time, she had an MRI with T2/FLAIR hyperintense lesions in the cervical and thoracic spinal cord as well as periventricular and juxtacortical white matter. MRI during this hospitalization showed an increase to greater than 30 T2/FLAIR hyperintense lesions within the periventricular and juxtacortical white matter consistent with a significant demyelinating process.Initial differential diagnoses based on symptoms and imaging included Neuromyelitis Optica and lymphoma. However, previous Neuromyelitis Optica antibody testing came back negative. Cerebral spinal fluid (CSF) IgG index reference was also elevated at 1.7 and she had more than 4 oligoclonal bands only found in the CSF which is consistent with MS. She is receiving ocrelizumab outpatient with neurology to control her symptoms, disease progression and improve her overall prognosis. Disease work-up, progression, and treatment considerations will be discussed. Based on interval change of lesions from previous imaging, rapid progression of symptoms, and improvement with 5 days of 1000 mg Solumedrol, an aggressive form of MS was her most likely underlying diagnosis.

Discussion/Conclusion

Fulminant MS is extremely rare but must be considered in young patients presenting with new onset focal neurological deficits. Having early imaging and treatment can help slow down the demyelinating process and delay lasting effects, and in the case of fulminant sclerosis can be used to prevent death. Some reports have shown benefits of treating fulminant MS with high dose steroids, cyclophosphamide, and ocrelizumab. With the recent development of biologic medications there is hope for slowing the progression. Providers must keep fulminant MS on their differential when evaluating severity of MS and remember how rapidly it can progress if left untreated.

Abstract #41 Recurrent Endocarditis from Common Culture Contaminants

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Dr. William Pham - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Rui Mao - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Staphylococcus epidermidis is a coagulase-negative staphylococcus that is commonly seen in skin flora. *S. epidermidis* can be routinely isolated from blood cultures and is thought to cause up to 40% of endocarditis cases in patients with prosthetic valves.

Case Description

A 63-year-old female with past medical history of bicuspid aortic valve stenosis status post bioprosthetic valve replacement initially presented to her primary care clinic with complaints of fatigue, weight loss, and night sweats. Two sets of blood cultures grew *Streptococcus gordonii*, a member of the *viridans* group. Outpatient transesophageal echocardiogram showed vegetations confirming infective endocarditis. Urgent referral to infectious disease was made and ultimately, the patient was advised to present to the hospital for further evaluation.

On admission, she was found to have infective endocarditis with aortic root abscess and positive blood cultures for *S. gordonii*. She underwent redo aortic valve replacement and aortic root enlargement with bovine pericardium to repair the coronary sinuses. In addition, she underwent a two-vessel CABG for 70% stenosis of the LAD and 40% stenosis of the RCA, and a pacemaker was implanted for complete heart block. She was discharged from the hospital with six weeks of ceftriaxone and close follow-up with infectious disease. Follow-up cultures showed 1/2 tubes of coagulase negative staphylococci suspected to be contaminant.

Four months later, the patient had a telehealth visit with her primary doctor where she reported similar symptoms as her initial endocarditis: right arm pain and fatigue. Repeat outpatient blood cultures showed S. epidermidis in 3/4 tubes collected. She returned to the hospital where a TEE was performed; this time, it was unremarkable. Hospital blood cultures continued to grow S. epidermidis. She was started on an additional six weeks of vancomycin per infectious disease. Blood cultures were repeated this time until negative.

Discussion/Conclusion

S. epidermidis is a common cause of endocarditis, particularly in patients with prosthetic valves. *S. epidermidisis* often considered a contaminant since it is common skin flora but can also cause serious cardiac infections. By repeating blood cultures when concerns for endocarditis were expressed, we were able to catch reinfection early. Education about possible infections caused by bacteria that are frequently dismissed as contaminants allows for earlier detection and treatment of infectious endocarditis.

Abstract #42 Too much of a good thing? Food aversions on semaglutide after bariatric surgery

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Dr. Jesse Richards - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Obesity is a widely prevalent condition that affects greater than 40 percent of the population with annual medical costs of approximately 173 billion dollars in the United States. The glucagon-like peptide 1 (GLP-1) agonist, semaglutide, was developed to target obesity, and received FDA approval in 2021. This drug has been shown to promote significant weight loss by acting on the brain to alter food reward salience and enhance satiety. Avoidant restrictive food intake disorder (ARFID) involves reduced interest in or concerns about the adverse effects of eating, leading to weight loss, nutritional deficiencies, or significant functional impairment.

Case Description

A 45 y/o female with a past medical history of class 3 obesity, obsessive compulsive disorder (OCD), and major depressive disorder, was seen by a provider who was part of a comprehensive medical and surgical bariatric program in 2020 to discuss weight loss options. Her BMI before initiation of treatment was 60.8. She underwent bariatric surgery in February of 2021 and was started on semaglutide in February of 2022. After three months, the patient developed ARFID along with recurrence of her previous OCD. This was associated with excessive weight loss. The patient reported a noticeable increase in appetite and decrease in food aversions after her dose of semaglutide was titrated down. This case illustrates the importance of monitoring for the development of ARFID when prescribing patients with semaglutide, and potentially other GLP-1 agonists, in post-bariatric surgery populations.

Discussion/Conclusion

GLP-1 receptors stimulation in the ventral tegmental area of the brain leads to increased dopamine transporter function, which is associated with reduced synaptic dopamine levels. Low synaptic dopamine levels may reduce the hedonic value or motivational salience of food, thereby reducing food intake and creating a negative energy balance that results in weight loss. Overall, semaglutide may possibly play a role in ARFID in this patient by reducing hedonic tone and food incentive salience, thereby leaving unchecked the patient's obsessive tendencies toward food. Data on the association between ARFID and semaglutide use has been limited to a case report. Research from this case study can be used to design studies to further investigate the mechanisms playing a role in the development of ARFID in patients using semaglutide.

Abstract #71 An Atypical Presentation of Leukocytoclastic Vasculitis in MRSA Bacteremia

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Dr. Dru Albin - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Leukocytoclastic vasculitis is a cutaneous small vessel vasculitis that may occur idiopathically or due to infection, medications, or neoplasms, and typically presents as palpable purpura. It is a known manifestation of systemic staphylococcal infection, and is thought to occur via a Type III hypersensitivity, with damage to vessels occurring from immune complex deposition. Biopsy is most accurate when taken 18-24 hours after lesion appearance, and histopathology classically shows neutrophil migration through vessels with neutrophil degeneration into fragments(leukocytoclasis). While often a self-limiting condition resolving over the course of weeks, there are various proposed therapies for management from antihistamines and colchicine to systemic glucocorticoids for severe cases.

Case Description

A 38 year-old woman with a history of injection drug use and previous MRSA infections presented to the emergency department for a rash and back pain that was concerning for a spinal epidural abscess. On exam, numerous petechiae and non-palpable purpura were present on the trunk and all extremities. There were no urticarial features including wheals and central blanching. Blood cultures drawn at the time of admission grew MRSA and antibiotic therapy was started. Clinical findings were insufficient to establish etiology of the skin lesions, so a 3 mm punch biopsy was taken of a lesion on the R leg. Although biopsy was taken 3 days after vessel appearance, pathology results were consistent with leukocytoclastic vasculitis. There was no systemic involvement, so a treatment of cetirizine was given in addition to continuing antibiotic therapy for the MRSA infection. Over the duration of the hospital stay there was gradual improvement in rash beginning at the trunk. At discharge, 2 weeks from admission, skin findings were limited to the distal extremities and had reduced in size and number. Attempts to reach the patient to establish follow up with infectious disease were unsuccessful and the patient was lost to follow-up.

Discussion/Conclusion

Leukocytoclastic vasculitis is a rare form of vasculitis that can be seen in MRSA bacteremia. While typically characterized by palpable purpura, this case demonstrated it may also manifest as non-palpable purpura. Physicians should have a low threshold for performing biopsy when history and clinical presentation are incongruent with suspected vasculitis etiology, with time to biopsy minimized to improve diagnostic accuracy. Given the condition is often self-limiting, it is unclear whether treatment with cetirizine was beneficial or if the improvement was the result of antibiotics or time.

Abstract #80 Actinomyces Incidentally Found in A Bleeding Marginal Ulcer Before Roux-En-Y Bypass Revision

Mr. Austin Milton - OU-TU School of Community Medicine
Dr. Dru Albin - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Leukocytoclastic vasculitis is a cutaneous small vessel vasculitis that may occur idiopathically or due The most common anatomic areas infected by Actinomyces israelii include the cervicofacial area (50%), abdomen (20%), and thorax (15-20%). Abdominal actinomyces most commonly affects the appendix and ileocecal region. Factors that predispose to abdominal Actinomycosis include recent abdominal surgery, cholecystectomy especially with spilled gallstones, trauma, neoplasia, perforated viscus. Abdominal Actinomyces is characterized by slow progression and an indolent course with symptoms of chronic fatigue, fever, weight loss, and abdominal pain; thus presentation may be months to years after a surgery.

Abdominal Actinomyces tends to remain localized and spread contiguously with disregard for tissue planes, while acquiring pathogenicity through invasion of breached or necrotic tissue. Granulomatous tissue, extensive reactive fibrosis, necrosis, abscesses, draining sinuses, and fistulas are common findings. Lymphadenopathy is not seen. Hematogenous dissemination is rare. A CT scan is the most helpful diagnostic modality and usually shows contrast enhancing multicystic lesions, however needle aspiration cytology can be helpful for indeterminate lesions. Penicillin without resection is first line treatment and should be continued for 1-2 months after resolution of the observed infection to prevent recurrence. This can mean 2 months total duration of antibiotic treatment for mild cases and up to 18 months for complicated cases. Successful surgical debridement may shorten the course and immunocompromised state may lengthen the course.

Case Description

A 77-year-old male with past medical history of roux-en-Y bypass 18 years ago presented with 1 day history of melena, nausea, and epigastric pain. 2 months prior, an upper endoscopy showed a gastrojejunal anastomotic (“marginal”) ulcer, a hiatal hernia, and esophageal ulcers. Biopsies of the marginal ulcer showed mild reactive changes negative for dysplasia or malignancy, positive for a detached fragment of Actinomyces-like colonies. Repeat endoscopy showed ulceration and stigmata of bleeding at the anastomotic site with a possible vessel rupture. The decision was made by his surgeon for bypass revision. The resected portion of small bowel and gastric mucosa were examined by a pathologist and showed unremarkable mucosa and submucosal fibrosis with no neoplasia or apparent Actinomyces colonies.

Discussion/Conclusion

This patient had multiple predisposing factors for abdominal actinomyces including a complex abdominal history and immunocompromised state secondary to type 2 diabetes mellitus. He falls into the relatively common subgroup of Actinomyces infections which are resected and then found incidentally. This patient should receive adjuvant penicillin therapy for 1-2 months as should all patients who receive surgical treatment of Actinomyces infection (whether known or unknown at time of operation).

Abstract #81 Neutropenic Fever in a Kidney Transplant Patient: Medications Matter!

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Mrs. Bailey Morris Ogilvie - OU-TU School of Community Medicine
Mr. William Ogilvie - OU-TU School of Community Medicine
Dr. Santhi Gokaraju - OU-TU School of Community Medicine, Department of Internal Medicine
Dr. Krishna Baradhi - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Azathioprine (AZA) is a frequently used immunosuppressive medication for maintenance therapy in renal transplant patients (6). Hyperuricemia and gout are commonly seen in renal transplant patients due to decreased renal excretion and is often treated with allopurinol (1). However, there is a known drug-drug interaction between allopurinol and AZA leading to myelotoxicity and pancytopenia (5)

Case Description

A 59-year-old woman with PMH of Autosomal Dominant Polycystic Kidney Disease s/p renal transplant in 2007, rheumatoid arthritis, gout, and history of DVT on Eliquis presented to an outlying facility for cough, shortness of breath, wheezing, and chest pain. She was then transferred due to neutropenia with concerns for neutropenic fever. Labs on admission indicated WBC 1.2, RBC 1.86, HGB 7.4, MCV 121, Platelets 64. Patient reports baseline Cr of 1.3-1.6, with GFR of 38, Cr of 1.53 on admission. The patient has been taking azathioprine, tacrolimus, and prednisone for transplant maintenance and started allopurinol for gout a year ago unbeknownst to her nephrologist. Upon admission, allopurinol and azathioprine were both held while infection vs. allopurinol/azathioprine combination reaction was investigated as the cause of the pancytopenia. CT of chest, abdomen, and pelvis, blood culture and UA showed no signs of active infection. On day 4 of hospitalization, the patient agreed to a bone marrow biopsy which showed myelosuppression. Medication interaction between allopurinol and azathioprine was the most likely cause of the pancytopenia with a slow increase in all 3 cell lines during her hospitalization while these medications were held. Patient was discharged with instructions to avoid allopurinol in the future and follow up with her nephrologist.

Discussion/Conclusion

This case demonstrates the potent and dangerous interaction between azathioprine and allopurinol. When absorbed, AZA is metabolized to 6-mercaptopurine (6-MP) which will then be broken down into either 6-methyl mercaptopurine (6-MMP) or 6-thioguanine (6-TG), the latter being the active metabolite for myelosuppression (2). Allopurinol, a xanthine oxidase inhibitor, is known to decrease the metabolization of 6-MP to 6-MMP and shift it toward 6-TG, thereby increasing the efficacy of AZA (4,5). This interaction can cause a powerful myelosuppression leading to bone marrow failure and subsequent infection (5,6). Gout can be severely painful and necessary to treat in immunosuppressed patients, however allopurinol should be strictly avoided in patients using AZA.

Abstract #89 Prolonged INR after discontinuing argatroban in patient with HIT and APLS

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Dr. Caleb Hurst – OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Argatroban is a reversible direct thrombin inhibitor (DTI). Since it blocks the last step of the common pathway of the coagulation cascade, argatroban causes an increase in PT, PTT, and INR. Argatroban has an elimination half-life of 51 minutes and ceases anticoagulant effect within 4 hours. Heparin induced thrombocytopenia (HIT) is an IgG immune reaction to the heparin/platelet factor 4 complex. This leads to increased platelet activation, clot formation, and a decreased platelet count. Antiphospholipid syndrome (APLS) is an association of thrombotic events in the setting of antiphospholipid antibodies. Those with APLS have increased risk of thrombotic events.

Case Description

A 58 year old female with history of hypothyroidism presented to the hospital for shortness of breath, left leg swelling, and rectal bleeding. She was found to have acute right-sided lobar and segmental pulmonary emboli, acute left deep vein thrombosis involving the common femoral vein, femoral vein, popliteal vein, posterior tibial veins, peroneal veins, and soleal veins. During admission she was also diagnosed with T4bN1a rectal adenocarcinoma, requiring a low anterior resection. On admission she was started on a heparin drip. Her initial platelet count was 536K, decreasing until day 13 to 111K. Her 4T Score correlated with a high probability of HIT. On day 12 she was transitioned from heparin to argatroban. Her initial heparin antibody was equivocal, but was positive on repeat . She also had elevated cardiolipin IgG, lupus anticoagulant, and DRVVT screen. Her anti-β-2-glycoprotein-I antibodies were negative. PT/PTT/INR at that time was 15.1/1.2/1.8. On day 24, attempted bridging from argatroban to warfarin was done but INR rose over 24 hours from 1.6 to 10.4 and bridging was abandoned. Due to drastic elevation of INR, transition to bivalirudin was attempted but parameters not met. Patient was started on fondaparinux. The INR remained elevated for an additional 10 days after stopping argatroban. On day 34 she began a successful bridge to warfarin from fondaparinux. Patient was discharged from the hospital with follow up with hematology and oncology for her rectal adenocarcinoma and hypercoagulability panel.

Discussion/Conclusion

Argatroban as a DTI causes an elevation in INR. Given its short half-life this should be transient after discontinuation. However, this case highlights that there is a risk of prolonged INR after discontinuation in those with HIT and APLS. In those with HIT and APLS, fondaparinux appears to be a viable anticoagulation alternative to argatroban as it does not affect INR.

Abstract #90 Diabetic Ketoacidosis and Pancreas Rejection 12 Months After Simultaneous Kidney-Pancreas Transplant

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Dr. Pranay Kathuria - OU-TU School of Community Medicine, Department of Internal Medicine

Introduction

Simultaneous pancreas and kidney transplant is the first line treatment for type 1 diabetes mellitus with end stage renal disease. It results in improvement of retinopathy and neuropathy. The half-life of a simultaneous pancreas-kidney allograft is approaching 15 years and a solitary pancreas allograft is nearing 13 years. Elevated pancreatic enzymes are the most common presentation of rejection. Most rejecting patients are asymptomatic or have mild tenderness. Rejection may be diagnosed via biopsy – which is the only way to grade severity and distinguish antibody-mediated rejection (AMR) from acute cell mediated rejection (ACR). The biopsy is usually percutaneous, pointing towards the tail to avoid splenic artery and vein. Biopsy is not performed at all centers because of procedural difficulty and shortage of pathologists experienced with the diagnosis.

Acute cell mediated rejection must be managed aggressively with steroids and sometimes antithymocyte globulin (ATG). Mixed AMR and ACR rejection should be treated first as ACR. If the biopsy is negative or indeterminate for ACR, C4d immunostaining and donor specific antibody (DSA) results should guide next steps.

Case Description

A 38-year-old African American male status-post allograft of bilateral kidneys and pancreas 1 year ago presented to the emergency room with bilateral flank pain, fever, & volume overload (edema, dyspnea). His serum Prograf level was supratherapeutic. His C-peptide level was half of normal. Amylase and lipase were within normal limits. He was admitted to the intensive care unit for diabetic ketoacidosis, then was released to the floor two days later once his anion gap had resolved and insulin drip was discontinued. He was discharged on a decreased dose of Prograf, an increased dose of Cellcept, and with addition of IV-immunoglobulin and prednisone to his regimen.

Discussion/Conclusion

It is not currently known why chronic rejection can present without serological evidence of acinar injury (i.e., elevated amylase and lipase) – as was this case in this presentation. It may be because progressive loss of acinar/parenchymal tissue results in less release of enzymes. C-peptide and hemoglobin A1C should always be checked in the setting of pancreas rejection. In some cases, elevated A1C and decreased C peptide may indicate the pancreas is not worth saving.

This patient's rejection in spite of a supratherapeutic Prograf level is likely related to subtherapeutic Cellcept and the presence of other risk factors which may include race mismatch, increased donor age, human leukocyte antigen (HLA) mismatch.

Obstetrics and Gynecology

Abstract #48 Prolonged neuromuscular blockade: A case of possible of pseudocholinesterase deficiency

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Mr. Guimy Castor - OU-TU School of Community Medicine
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Introduction

Pseudocholinesterase deficiency (PCD) is a rare inherited or acquired defect of the pseudocholinesterase enzyme by the liver. In clinical practice, paralytics such as succinylcholine and mivacurium are used during general anesthesia for intubation and during the surgery itself. Patients with PCD have difficulty metabolizing these paralytics resulting in prolonged neuromuscular blockade.

Case Description

A 24yo G1P0 at 36w2d underwent primary cesarean delivery for preeclampsia with severe features versus possible HELLP syndrome. Platelets noted to be 89k on admission. After discussion with anesthesiology, epidural would not be possible due to platelet level in the setting of her primary diagnosis. Patient elected for primary cesarean delivery as she did not want to have a vaginal delivery without regional anesthesia. Patient was also remote from delivery with cervical dilation of 2cm. Induction for general anesthesia was achieved using propofol and succinylcholine. Intubation performed without difficulty, Cormack-Lehane classification grade 1. Sevoflurane was used to maintain anesthesia. Upon completion of procedure, inhalation anesthetic was turned off in routine fashion. After approximately 40 min of cessation of anesthetic no respiratory effort or movement was noted from the patient. Nerve stimulation showed no twitches. At this time PCD was suspected and the patient remained intubated and was transferred to the ICU for respiratory support until spontaneous resolution of neuromuscular blockade. Several hours later neuromuscular blockade resolved, and patient was extubated. Upon discharge from the hospital, patient made full recovery without any residual respiratory or neurological deficits

Discussion/Conclusion

PCD is uncommon, often discovered in a surgically naïve patient such as this case. The inherited form is an autosomal recessive mutation located on chromosome 3. Homozygotes typically have a more severely prolonged neuromuscular blockade than heterozygotes. The acquired form can occur in the presence of many diseases, drugs and stressors. More notably in our case it can occur in pregnancy and the postpartum period. Most texts estimate an incidence of 2000-5000 individuals with the highest incidence occurring among Caucasian males of European descent. Individuals with a functioning pseudocholinesterase enzyme can rapidly metabolize succinylcholine, typically less than 10 minutes. Whereas individuals with PCD can experience neuromuscular blockade for several hours. Laboratory analysis can be achieved by performing a qualitative test of pseudocholinesterase enzyme activity or by the Dibucaine test. Further genetic testing may also be completed. Treatment involves conservative management with respiratory support and sedation until recovery. Management of PCD is the avoidance of succinylcholine and mivacurium with other non-depolarizing agents considered safe.

Abstract #54 What vaccines could have prevented...Stillbirth & Postpartum Limb Amputations

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Introduction

Many patients remain unvaccinated due to skepticism over ingredients, perceived negative effects and misunderstanding of vaccine mechanisms. Although largely presenting as mild illness with body aches, fevers and general malaise, Influenza and COVID have the potential to cause severe respiratory distress and crippling long-term ramifications in unvaccinated patients. The goal of this case is to provide a clinical example of the importance of vaccinations during pregnancy.

Case Description

26-year-old female at 35 weeks pregnant, with a recent diagnoses of Influenza A & COVID, presented to a hospital on 12/3/2022 with worsening shortness of breath, decreased fetal movement, vaginal bleeding and contractions. The patient delivered a stillborn infant then quickly developed respiratory distress and septic shock, requiring respiratory support. Despite resuscitative measures, the patient continued to worsen and was transferred to another hospital due to the need for more advanced respiratory support.

The Obstetrics & Gynecology team was consulted due to concerns septic shock was caused by remaining pieces of placenta. From an OB/GYN standpoint, the patient did not have any bleeding nor abnormal vaginal discharge. Due to her critical condition, she was not a candidate for surgical management. Serial transvaginal ultrasounds and administration of vaginal medication were used to non-operatively manage what was thought to be normal postpartum clot.

In the intensive care unit, the patient's vascular status worsened; she eventually developed dry gangrene in all four extremities with skin sloughing and purpura that encompassed both lower extremities just below the knee joint and most of both upper extremities about 1/3 of the length between her wrists and elbow. The extent of microvascular thrombi rendered her limbs necrotic.

On 1/3/2023, she underwent a hysteroscopy dilation and curettage to empty the contents of her uterus in addition to bilateral below knee amputations. Then on 1/10/2023, her right forearm and distal third of her left forearm were amputated. This patient went on to be hospitalized for an additional 15 days, with 7 of those spent in inpatient rehabilitation.

Discussion/Conclusion

Influenza A and COVID continue to wreak havoc amongst the unvaccinated pregnant population. The vascular changes due to infection are thought to not only play a role in the patient losing her extremities, but also in the demise of her infant. Due to the large amount of stress her body went through, we are now unsure if the patient will have a menstrual period again, let alone be able to become pregnant again.

Abstract #87 A Unique Clinical Presentation: Giant Chronic Bartholin Cyst vs Endometriotic Cyst

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Introduction

Bartholin cysts are typically benign, asymptomatic cysts containing mucoid secretions that occur in the Bartholin glands located on bilateral labia. Cyst formation occurs when the drainage ducts are blocked, typically due to inflammation or trauma. Cyst contents are primarily mucoid secretions, but purulent materials may be present when infected. There have also been rare reported cases of endometriotic cysts with sanguineous contents located in the Bartholin gland. Typical Bartholin gland cysts measure 2 to 4 centimeters, although cases of “Giant Bartholin Cysts'' with diameters 10 to 20 centimeters have been reported. While morbidity is low for uncomplicated cysts, chronicity confers risk for vulvar neoplasms.

Case Description

A 30 year old woman presented to acute care clinic with a 10 year history of chronic left labial cyst, consistent with a Bartholin cyst. She reported painful vaginal swelling and that she felt her cyst was filling during menses. Previous treatment consisted of antibiotics and six months of incision and drainage at three weeks intervals without complete resolution. Her treatment was additionally complicated by lack of access to care. On physical exam, a large cystic mass extended from the left Bartholin gland and involved the labia majora up to the inferior border of the mons pubis. There were also firm tender nodules on the medial aspect of the cyst, concerning for possible malignancy. Incision of the cyst resulted in an estimated 400 mL of coffee-colored blood. No purulent material was noted in the drainage. Two weeks after drainage the cyst was smaller than initial presentation, but she reported continued filling sensation. CT imaging six weeks after initial drainage showed a 12.4 x 4.5 x 6.3 centimeter left Bartholin gland cyst, so the patient was referred to gynecology clinic where a Word catheter was placed. Vulvar biopsy of masses is planned.

Discussion/Conclusion

While Bartholin gland cysts are typically benign, asymptomatic masses, chronic Bartholin cysts can become very large in size and confer a risk of malignancy. The chronic nature of this cyst along with inconsistent treatment may have resulted in the large size. Additionally, the sanguineous cyst contents and sensation of filling during menses suggest the cyst may have endometrial components, which may additionally have contributed to the size of the cyst. Endometriotic cysts are uncommon, and we would search for findings such as endometrial glands, endometrial stroma, and hemosiderin laden macrophages to help confirm such a diagnosis. Nature of the cyst will be determined by pathology.

Pediatrics

Abstract #3 Cytomegalovirus Meningitis in Infant with Hypocomplementemia

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Introduction

Cytomegalovirus (CMV) is part of the Herpesvirus family that affects individuals of all ages. Healthy, immunocompetent individuals may be asymptomatic or have mild symptoms; however, infections in newborns or immunocompromised individuals can cause serious, life-threatening complications. CMV can be transmitted through in utero exposure, perinatal infection, close contact, breast milk, sexual transmission, or from a blood transfusion or organ transplant.

Case Description

A previously healthy 4-week-old infant initially presented to the pediatric intensive care unit with fever, tachypnea, tachycardia, cough, and sepsis secondary to Rhino/Enterovirus and Human Metapneumovirus with compounding Klebsiella pneumonia, requiring intubation for acute hypoxic respiratory failure. A blood transfusion was required secondary to low hemoglobin of 7.6g/dl and IV antibiotics were initiated for pneumonia. On hospitalization day 27, patient developed fever with leukocytosis, thrombocytopenia, and an elevated CRP and procalcitonin. A full septic workup was concerning for CMV meningitis with positive IgG, IgM and CMV culture. The CMV infection, initially thought to have been acquired via blood transfusion, was later suspected to be acquired from an unknown infected carrier. Pediatric Infectious Diseases was consulted, and IV ganciclovir was given. Pediatric Immunology recommended obtaining immunological workup which was negative for HIV, but confirmed hypocomplementemia. Specific complement and T cell levels were obtained demonstrating low complement levels, specifically low serum total hemolytic complement CH 50. Sulfamethoxazole and trimethoprim prophylaxis were started prior to discharge on hospitalization day 42 after making a full recovery.

Discussion/Conclusion

Most individuals with acquired CMV infections experience mild symptoms or remain asymptomatic throughout their illness. CMV infections are self-limiting for those with an adequate immune response. Individuals with immunodeficiencies may present with severe symptoms due to their lack of an immune response, which in this case, was secondary to low complement levels. Individuals with severe symptoms warrant further work up to investigate the aptitude of their immune system. Low complement levels may increase risk of bacterial and viral infections, as well as more severe complications.

Abstract #5 Gross Hematuria In An Infant With Acquired Solitary Kidney

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Introduction

Hemolytic uremic syndrome (HUS) is an acute condition where microvascular thrombi occur in the vasculature of the renal system resulting in thrombocytopenia, microangiopathic hemolytic anemia and acute kidney injury. HUS may originate from either congenital or acquired causes. HUS is initially treated with supportive care measures; however, if severe renal failure ensues, dialysis may be necessary.

Case Description

An 8-month-old male with a history of radical left nephrectomy due to mesoblastic nephroma at birth was admitted to the hospital with a four-day history of painless, gross hematuria. Laboratory results indicated proteinuria (protein/creatinine ratio of 128,544mg/g), hematuria, anemia (8.6mg/dl), thrombocytopenia (63x10^3/mcl), Cr 0.91mg/kl, and high lactate dehydrogenase (1284 U/L). Renal ultrasound showed the right kidney measuring 8cm in size with normal doppler flow. Peripheral smear indicated RBC fragments, high reticulocyte count of 6%, and low haptoglobin <8mg/kl consistent with a thrombotic microangiopathic process. There was no history of diarrhea, and stool studies were negative for E Coli. Pediatric nephrology was consulted and expressed concern for atypical HUS, prompting additional labs which showed low C3 (67mg/dl) and normal ADAMSTS13 activity (>61%), resulting in complement panel and genetic testing for atypical HUS. Due to worsening renal function, eculizumab was administered on day 3 of admission. Oliguric renal failure developed, necessitating transfer to an outlying facility where he received hemodialysis for 2 weeks and a second dose of eculizumab. His renal function improved, and he was discharged after 16 days of hospitalization. At follow up, his serum creatinine improved (0.2 mg/dl). His blood pressure was controlled with amlodipine and labetalol. Eculizumab infusions were continued every two weeks. After discharge, results of complement panel were consistent with Atypical HUS due to pathogenic variant, 1: g.196706115:C>T in the CFH gene mutation.

Discussion/Conclusion

This case exemplifies a rare case of hematuria and acute kidney injury due to a mutation in the CFH gene causing HUS. HUS may be found in the setting of solid organ cancer; however, investigation in this case ruled out recurrence of renal tumor. Prompt diagnosis of atypical HUS and early initiation of therapy with eculizumab was crucial to prevent further renal injury and eventual recovery of renal function.

Abstract #9 Pasteurellosis in a 23-Day Old Neonate

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Introduction

Pasteurellosis is a rare blood-borne infection that causes fever in neonates. *Pasteurella multicide* is the most common isolated bacteria and is typically associated with exposure to cats and dogs. Pasteurella is not routinely screened for when evaluating for causes of neonatal fever but is treatable when identified promptly.

Case Description

A 23-day old infant was transferred from an outlying facility with fever. The day prior to transfer, parents noted the infant was lethargic with decreased oral intake and had a fever of 100.4F which prompted initial presentation. Upon presentation, a temperature of 100.6F was recorded and septic workup was initiated. Blood cultures were drawn, however lumbar puncture was unsuccessful. Prophylactic treatment with antibiotics was initiated prior to transfer.

Upon arrival at our facility a lumbar puncture was promptly performed. Due to a hematoma from previous attempts at the outlying facility, only a small amount of blood-tinged fluid was collected and sent for gram stain and Meningitis PCR. Scheduled IV ampicillin and ceftazidime for empiric treatment were initiated. Further lab work revealed a negative mini-RPP, an elevated pro-calcitonin and an elevated CRP. Meningitis panel and gram stain were both unremarkable. The infant remained afebrile overnight, with feeding and alertness improving. The fever was determined to be secondary to gram negative bacteremia due to gram negative coccobacilli growth at the outside facility's lab. Further questioning revealed that there were four cats and one often slept in the infant's crib. On hospital day 4, the blood culture was determined to be positive for Pasteurella. Treatment with ceftazidime was discontinued, and a repeat blood culture was drawn. On hospital day 5, Pediatric Infectious Disease was consulted and 21 days of IV ampicillin was started per their recommendation. They further recommended a brain MRI be performed after treatment was concluded.

The patient completed 21 days of antibiotic therapy and brain MRI was normal. The infant was subsequently discharged home on the same day.

Discussion/Conclusion

Pasteurellosis should be considered in neonates exposed to pets. It is typically responsive to beta-lactam therapy. This case demonstrates the importance of initiating broad spectrum antibiotics as soon as possible in the febrile neonate. Further, this case reinforces the need to obtain a thorough environmental history and counsel parents to keep newborns and pets separated during the neonatal period.

Abstract #10 SRY Negative Disorder of Sexual Differentiation in Two Biological Brothers

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Introduction
Disorders of sexual differentiation (DSD) in phenotypic males are rare and are most commonly caused by translocation of the SRY gene from the Y to the X chromosome; however, there are rarer cases where 46 XX males have no SRY gene. This case presents brothers in which the upregulation of the SOX3 gene was believed to express a male phenotype of 46 XX by functioning as the SRY gene.

Case Description
A 17-year-old male adolescent presented for lack of phallus virilization and a history of hypospadias with webbing requiring 3 surgical repairs in infancy. Physical exam revealed a well appearing teenager with tanner 5 pubic hair, 5 cc testes, stretched penile length of 5.2 cm, and chordee present with a larger urethral opening on the ventral side of the penis. The patient was in the 46th percentile for height and the 25th percentile for weight with a normal bone age. LH was mildly elevated at 5.73 mIU/mL. Testosterone was 353 ng/dL correlating with Tanner Stage 5. Thyroid studies, IGF, FSH, Anti-Mullerian Hormone, Dihydrotestosterone and Inhibin B were normal. Karyotyping revealed 46, XX. A Disorders of Sex Development Panel resulted SRY negative with SOX 3 duplication likely causing male phenotype. The patient was referred to pediatric urology where an abdominal ultrasound revealed no ovarian or uterine tissue. Further virilization therapy via testosterone injections was offered if patient so desires in the future.

After this diagnosis, the patient's 12-year-old brother presented for evaluation due to a similar birth history. Physical exam showed a well appearing pre-adolescent with tanner stage 2 pubic hair, testes 5cc bilaterally, and a stretched penile length of 6.5 cm. The patient was in the 70th percentile for height and the 12th percentile for weight. Labs revealed a normal FSH and LH. Testosterone was 60 ng/dL which correlated with tanner stage 2. Karyotyping showed 46, XX. The patient's Disorders of Sex Development Panel showed a duplication of SOX3 that is likely resulting in male phenotype.

Discussion/Conclusion
SOX3 upregulation resulting in male phenotype in 46, XX is extremely rare. Only 5 individuals have been noted to have this SOX3 mutation, none with the exact mutation as these brothers. No identical cases in biological siblings have been documented. These cases provide further evidence that SOX3 is a functional SRY substitute in sexual differentiation in individuals with DSD and demonstrates the possible hereditary component of this genetic mutation.

Abstract #11 Hyperimmunoglobulin E Syndrome Presenting as Severe Eczema and Failure to Thrive

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Introduction

Hyperimmunoglobulin E syndromes (HIES) are primary immunodeficiencies characterized by elevated immunoglobulin subtype IgE, severe eczema, recurrent staphylococcal abscesses, and sinopulmonary infections. Since their initial characterization, the definition has broadened to include individuals without a diminished immune response and with GI inflammatory response. This case demonstrates the initial presentation of HIES in an infant with severe eczema and failure to thrive (FTT).

Case Description

An 8-month-old with a 3-month history of severe eczema who presented to St Francis ED with a 2-week history of worsening rash with peeling/oozing skin, edema, and pain with movement of extremities. Additional history included frequent emesis and non-bloody diarrhea, with weight loss in the past 6 months meeting criteria for moderate malnutrition. Pertinent initial lab results included leukocytosis (19.4), thrombocytosis (736), hypoalbuminemia (2.4), lactic acidosis (2.3), and elevated absolute lymphocytes (9.3), absolute monocytes (1.6), and absolute eosinophils (2.0). Procalcitonin, CRP, and blood culture resulted negative. CMP was consistent with dehydration and liver function/coagulation tests were normal. Given this presentation, the initial differential diagnosis included staphylococcal scalded skin syndrome and severe eczema with a superimposed staph or strep cellulitis.

Concurrent malabsorptive process was also investigated given recent weight loss and hypoalbuminemia. Extensive lab workup ruled out zinc deficiency, nephrotic syndrome, pancreatic insufficiency, and alpha-1 antitrypsin deficiency. Parasite antibodies and GPP were also negative, making infectious gastroenteritis unlikely. A colonoscopy with biopsies showed no abnormal pathology. Celiac panel was gliadin IgA positive. Clindamycin and cefazolin were empirically initiated, with subsequent wound cultures resulting positive for MRSA. RAST panel showed IgE >5000 and global positives on every allergy tested. Further immunological evaluation revealed low IgG and IgM, and eosinophilia, consistent with HIES. Normal TLR function and elevated CD3/CD4 levels indicated a proliferative defect. Functional antibody titers confirmed a need for IVIG and it was concluded that GI symptoms were likely a manifestation of HIES. The infant was transferred to another facility for further evaluation and specialized treatment.

Discussion/Conclusion

The initial symptomatology of FTT and eczema in an infant created a broad diagnostic differential. The findings of eosinophilia (with GI manifestations including diarrhea and malabsorption), hyper IgE, and eczema fit the diagnostic criteria of HIES, and ultimately guided clinical management. Clinicians should keep this sequela in mind when evaluating a pediatric patient with severe eczema and malabsorption.

Abstract #12 Diagnosis of X-linked agammaglobulinemia in hospitalized infant

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Introduction

X-linked agammaglobulinemia (XLA) is a rare primary immunodeficiency caused by an X-linked recessive mutation of the Bruton's tyrosine kinase (BTK) gene that results in a failure of B cell development and leads to defects in B lymphocyte, plasma cell, immunoglobulin, and antibody responses. XLA presents at 6 to 9 months as maternal antibodies wane, often with recurrent upper respiratory infections, absence of tonsils and adenoids, growth delays, and multiple PICU admissions. Only forty percent of patients have an affected relative.

Case Description

A 19-month-old male presented to the hospital with a 2-day history of fever, respiratory distress, lethargy, and decreased oral intake and urinary output. Chest x-ray showed bilateral perihilar infiltrates and a respiratory pathogen panel was positive for rhino/enterovirus. History included a PICU stay one month prior due to respiratory distress secondary to influenza A with secondary bacterial pneumonia, frequent illnesses since 6 months, and a maternal male cousin who also experienced a similar presentation at the same age. Physical exam revealed tachycardia, bilateral lower lobe crackles, tachypnea, shallow breathing, nasal flaring, and weight at the 1.8 percentile (Z-score -2.097). Developmental milestone delays and severe malnutrition were also noted. Abnormal labs included a depressed absolute neutrophil count of 35 cells/µL (1,500-8,500) and an absolute lymphocyte count of 9,804 cells/µL (6,000-17,500). A serum immunoglobulin panel found globally decreased IgA <5 mg/dL (14-158), IgM 26 mg/dL (43-200) and IgG <108 mg/dL (345-1,123), prompting an immunology consult. Flow cytometry confirmed decreased CD19 B lymphocytes of 3 cells/µL (430-3,300) and elevated CD3 T lymphocytes of 7,934 cells/µL (2800-3500). He was diagnosed with XLA, along with secondary bacterial pneumonia, microcytic anemia, and failure to thrive. He was started on IVIG at 400mg/kg three times monthly.

Discussion/Conclusion

XLA should be suspected in the setting of recurrent infections, a pertinent family history of male family members, absence of tonsils and adenoids, and abnormal lymphocyte and immunoglobulin levels. Early identification is critical as XLA can result in death by 10 years when left unmanaged. IVIG effectively lowers infection incidence and raises IgG levels, but not IgA or IgM levels. Families should be counseled on prophylactic antibiotic coverage, inactivated vaccines, and the possibility of allogeneic bone marrow hematopoietic cell transplantation.

Abstract #13 Adult Food Protein-induced Enterocolitis Syndrome: An Unfamiliar Diagnosis with Unique Characteristics

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Introduction

Food protein-induced enterocolitis syndrome (FPIES) is a non-immunoglobulin E (IgE) mediated gastrointestinal food hypersensitivity that presents as prolific, repetitive vomiting that can lead to dehydration and weight loss and is commonly misdiagnosed as viral gastroenteritis. Although it has predominantly been classified as a disease affecting infants and young children, adult cases have been anecdotally reported, with only one confirmed case published. Unlike child FPIES, which is commonly caused by cow's milk or soy protein and has a male predominance, adult FPIES is typically triggered by seafood and has a female predominance. Symptoms include severe abdominal pain within 1-4 hours of ingestion followed by profuse emesis and diarrhea, and may even occur after ingestion of a previously tolerated food. Personal and family history of atopy are frequently present in these patients, with eczema being the most common. There are no specific tests for this and FPIES is diagnosed clinically. Diagnosis may be confirmed with an oral challenge when indicated. Management is avoidance of causative agent.

Case Description

A 45-year-old female with a history of eczema but no previous allergy diagnosis presented to the Allergy clinic for evaluation of prolonged vomiting after consumption of certain sea foods. She reported that one year ago, she experienced vomiting for a four-hour duration after consuming a crab cake three hours prior. Two similar incidents happened after ingesting shrimp a few months later, and she has since avoided all sea foods with no further incidents. No itching, throat closing, new rash, or shortness of breath were associated with any of these incidents. She had previously been able to consume sea food without any issues. No family history of similar incidents was reported. Shellfish allergen profile as well as oyster and clam IgE were obtained and resulted negative. Based on clinical presentation, she was diagnosed with adult FPIES and was advised to avoid shellfish.

Discussion/Conclusion

FPIES is a rare but severe food allergy which is commonly misdiagnosed, especially in the adult population. This patient's history of eczema, female sex , negative IgE, acute nature of symptom onset with prolonged duration after ingestion of shellfish, and recurrence of symptoms with similar food groups all pointed towards her having adult FPIES. Clinicians should keep this diagnosis in mind when evaluating patients with prolonged vomiting, and be aware of the differences between viral gastroenteritis, anaphylaxis, and FPIES as they all have different clinical presentations.

Abstract #23 Delayed Administration of Epinephrine in Dr. Pepper Induced Anaphylaxis

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Dr. Jazeb Ifikhar - OU-TU School of Community Medicine, Department of Pediatrics

Introduction

The lifetime prevalence of anaphylaxis in the United States is .05-2%. Studies have found a rise in incidence of anaphylaxis in emergency department visits, especially among children. The diagnosis of anaphylaxis is challenging due to the wide range of potential clinical manifestations. The difficulty in diagnosis results in under-recognition and undertreatment.

Case Description

A 16-year-old with mild intermittent asthma and a known orange allergy presented to the pediatric emergency center with dyspnea, urticaria, lip and periorbital edema 2 days after eating chicken nuggets and Dr. Pepper. Hives appeared on the face, arms, legs and back less than 1 hour after eating. Diphenhydramine was given at home before presenting to urgent care where more diphenhydramine was given before being sent home. Overnight, dyspnea developed and 911 was called resulting in presentation to the pediatric emergency department where oxygen was given along with diphenhydramine and a steroid prescription prior to discharge. On the way home, lip and periorbital edema resulted in another presentation to urgent care. Intramuscular epinephrine was given prior to transfer to an outside ED where a second dose of IM epinephrine and IV methylprednisolone were given. An epinephrine drip was initiated due to worsening symptoms without noted hypotension prior to transfer to the PICU at the Children's hospital. After improvement of symptoms, hydroxyzine and diphenhydramine were initiated prior to being transferred to the general pediatric service. Despite initial improvement, the next morning worsening urticaria, edema, emesis, extreme itching and hypotension were noted prompting a third dose of IM epinephrine which resolved the urticaria and improved other symptoms. The only items consumed overnight were chips and a couple sips of Dr. Pepper. Allergy/immunology was consulted, angioedema labs were obtained, and omalizumab was given. Upon further inspection, it was determined that the orange flavor in Dr. Pepper likely caused anaphylaxis. Anaphylaxis precautions, and EpiPen education were given prior to discharge.

Discussion/Conclusion

The ingredients on a Dr. Pepper label in the United States include artificial and natural flavors. Overlooked in this case is the fact that one of the 23 flavors is orange, which led to recurrent anaphylaxis in this patient. This child did not receive epinephrine for over 24 hours after their initial anaphylaxis reaction which is associated with increased mortality. The literature indicates the lack of standardized protocol can cause delays in epinephrine administration. This case highlights the crucial need for recognition of anaphylactic symptoms, detailed documentation and the variable presentations in pediatrics.

Abstract #26 Nephrotic Syndrome in a Pediatric Patient with Type 1 Diabetes Mellitus

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Introduction

Proteinuria in a patient with diabetes mellitus (DM) usually suggests diabetic nephropathy (DN). However, DN occurs late in the disease and is typically associated with hypertension (HTN) and retinopathy. We report an adolescent with type 1 DM who developed nephrotic syndrome (NS) a year after the diagnosis of DM.

Case Description

A 15-year-old presented to Nephrology clinic to establish care with chief complaints of proteinuria. Previous medical history included a diagnosis of Type 1 DM at 11 years of age. One year later nephrotic range proteinuria and edema developed resulting in diagnosis of idiopathic NS and treatment with oral steroids. Steroid dependent NS developed, prompting treatment with mycophenolate mofetil (MMF). DM was poorly controlled with HgbA1c in the range of 10-11% including a recent admission for diabetic ketoacidosis. Upon physical exam, vitals indicated Stage1 HTN (131/77 mmHg), with no edema noted. Current daily medications included insulin and MMF (800 mg/m2/dose twice daily). Labs indicated low albumin (2.3 mg/dl), serum creatinine 0.5 mg/dl, urine analysis 3+ protein, and urine protein/creatinine ratio (UPCR) (4 mg/mg). C3, C4 levels, Hepatitis panel and HIV testing were unremarkable. Due to recurrent relapses, a kidney biopsy was performed which was consistent with minimal change disease (MCD). Electron microscopy showed widespread epithelial foot process effacement and microvillous transformation of the podocytes in addition to changes of mild diabetic nephropathy (Class II a). Treatment included oral steroids for 12 weeks with accompanying increase in insulin therapy, lisinopril for antiproteinuric effects and hypertension, and MMF. Remission has been maintained for 6 months on this regimen. (UPCR is 0.3 mg/mg).

Discussion/Conclusion

Proteinuria related to DM generally develops in the second decade of the disease, even though early histological changes can be found 2-5 years after onset of diabetes. Early onset of proteinuria should be evaluated with kidney biopsy, to rule out primary glomerulopathy such as MCD. Treatment with steroids can cause uncontrolled diabetes necessitating increased insulin doses. Steroid sparing agents such as MMF and rituximab have been used in individuals with frequent relapses to avoid long term steroid exposure.

Abstract #32 Henoch Schonlein Purpura as a Physical Abuse Mimic

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Dr. Michael Baxter - OU-TU School of Community Medicine, Department of Pediatrics

Introduction

Child abuse and neglect is a significant public health problem. Bruising is often considered a sentinel injury for physical abuse and clinicians must be able to differentiate between accidental injuries, abuse, and medical conditions that mimic abuse. One such condition is Henoch Schonlein purpura (HSP), which is characterized by palpable purpura of the lower extremities following a viral infection. The purpura usually follows bruising or joint swelling and can also be accompanied by stomach pain and hematuria or proteinuria.

Case Description

A previously healthy 5-year-old presented to the Child Advocacy Center with significant ecchymosis after playing soccer at school the previous week. The bruises were discovered over the weekend by parents, who made a DHS referral due to concerns of abuse. When evaluated by the child abuse pediatrician the following week, bruising was noted to periumbilical area, as well as the legs and buttocks bilaterally. There was a recent history of a swollen ankle, and a remote history of a viral upper respiratory infection. There was no history of trauma, abdominal pain, kidney dysfunction, or significant family or personal bleeding concerns. Referral to pediatric hematology was made, and a VWB panel, CBC, PT/PTT, and CMP were ordered and unremarkable. At the follow-up visit 1 week later, it was disclosed that the ecchymoses became palpable and confluent, which prompted parents to take the child to the children's hospital where a diagnosis of HSP was made.

Discussion/Conclusion

This case highlights the importance of recognizing that not all bruising discovered upon a physical exam is a result of abuse. In this specific case, the presentation of bruising coupled with nonspecific clinical history raised concern for the safety of the child upon initial presentation. With careful history, examination, and supporting lab work, a diagnosis of HSP was reached and supportive care was initiated. This case reinforces the importance of using clinical acumen and a thorough differential to help delineate child physical abuse from pathophysiologic processes.

Abstract #45 Primary Adrenal Insufficiency in Children as a Differential Diagnosis for Hyponatremia

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Introduction

Primary adrenal insufficiency is characterized by decreased production of adrenal hormones and can present with a wide array of clinical symptoms including abdominal pain, nausea, vomiting, headache, and mood changes. More specific symptoms include salt cravings and skin hyperpigmentation. We present the case of a 10-year-old female with an intermittent, progressively worsening, 10-month history of abdominal pain and nausea.

Case Description

A 10-year-old female was referred to pediatric endocrinology for recurrent episodes of abdominal pain, nausea, and vomiting that would improve with corticosteroid administration. Symptoms started 16 months prior with significant laboratory findings including sodium 132 mmol/L, AST 1.5 times upper limit and bilirubin of 2.1. At that time, family also reported salt cravings, lethargy, and mood changes. Six months prior to referral, she presented to the ED with the same symptoms plus fever with an elevated ESR, WBC, and sodium of 132, prompting admission for concerns of terminal ileitis and hyponatremia. Additionally, her CRP and CALPRO FEC were elevated with negative SARS-CoV2 PCR. During admission, sepsis and MIS-C were suspected due to further CRP elevation along with elevated troponin, PT, INR, PTT, D-Dimer, fibrinogen, and WBC. At that time SARS-CoV-2 IgG and spike were both positive along with the CoV2G Spike Index. Treatment with intravenous immunoglobulin and corticosteroids immediately improved symptoms apart from continued low serum sodium. After completion of a 14-day steroid taper, similar symptoms were demonstrated, prompting another ED presentation where serum sodium was 133 mmol/L. When corticosteroids were restarted, symptoms improved. Labs obtained at the pediatric endocrinology outpatient visit demonstrated further decrease in sodium to 127 mmol/L, elevated potassium, renin, and adrenocortical hormone. Adrenal antibodies were positive and treatment with hydrocortisone 5 mg twice daily and fludrocortisone 0.1 mg was started. Diagnosis of primary adrenal insufficiency was made at this point. Follow up one month later showed sodium improvement to 142 mmol/L with resolution of hyperkalemia and improvement in mood, appetite, fatigue, and weight gain.

Discussion/Conclusion

Because primary adrenal insufficiency can present with varying signs and severity, it can be easily overlooked as a cause of hyponatremia. It is critical that it be included in a workup, especially if there is reason to suspect adrenal crisis.

Abstract #47 Triglyceride Abnormalities in the Setting of Diabetic Ketoacidosis

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Introduction

Diabetic Ketoacidosis (DKA) is an emergent complication of diabetes mellitus when inadequate insulin levels do not allow the body to utilize glucose, resulting in elevated blood glucose and ketone production. Hypertriglyceridemia is often a consequence of DKA, as a lack of insulin increases fatty acid breakdown and triglyceride production. In addition, triglyceride clearance is decreased during periods of insulin deficiency.

Case Description

An 11-year-old with type 1 diabetes mellitus presented to the Pediatric ER with persistently elevated blood glucose after missing an insulin dose 3 days prior. This glucose did not improve with rapid acting insulin, following the clinic's sick day management protocol, or after administration of 38 units insulin degludec, which was higher relative to her usual dose. At the Pediatric ER, she was found to be acidotic with a pH of 7.01, and a normal saline bolus was administered before admission to the PICU for treatment of diabetic ketoacidosis. The morning of PICU admission, her blood glucose was 370 mg/dL. A pH of 6.93 was noted in the PICU and further labs revealed elevated triglycerides of 13,842 mg/dL (44-197 mg/dL), acute pancreatitis with a serum lipase of 171 U/L (4-39 U/L), and acute kidney injury with a creatinine level of 1.06 mg/dL (0.52-0.69 mg/dL) and glomerular filtration rate of 63.34 mL/min/1.73 m2 (> 89.00 mL/min/1.73 m2). DKA was treated with regular insulin intravenous infusion, dextrose infusion, and normal saline. Insulin infusion was continued until the triglyceride levels markedly lowered. Thyroid and LDL levels were tested. LDL levels were low and TSH was within the normal range. Continuous insulin infusion was given until triglyceride levels were lowered to 714 mg/dL and ketones were minimal. Intravenous fluids were restarted the following day when triglyceride levels increased to 5000 mg/dL and acidosis was present. The child stabilized and was discharged on hospital day 6, with close endocrine follow-up and fenofibrate therapy.

Discussion/Conclusion

When treating DKA, it is important to promptly identify elevated triglycerides and ensure management to decrease the levels. Insulin deficiency during DKA affects key insulin dependent enzymes, resulting in both the increased production of triglycerides from accelerated lipolysis, and decreased clearance of serum triglycerides. Elevated pancreatic lipase along with hypertriglyceridemia increases the risk for lipase-mediated triglyceride breakdown and thus an increase of fatty acids, resulting in acute pancreatitis. While slightly elevated triglycerides often result from DKA, it is possible to have extremely elevated levels and pancreatitis as was seen in this case.

Abstract #55 Langerhans Cell Histiocytosis vs Atopic Dermatitis in a Pediatric Patient

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Introduction

Langerhans cell histiocytosis (LCH) is a rare condition that arises from Langerhans cells, a type of dendritic cell that helps the body fight infection. Mutations can develop in genes that control dendritic cell function, resulting in proliferation and buildup of Langerhans cells in different parts of the body, causing tissue damage or lesion formation. LCH commonly presents as rash and/or bony lesions.

Case Description

A 2-year-old with a history of frequent ear infections and pathologic fractures initially presented to clinic for evaluation of right wrist injury, nasal drainage, and flaky, scaly scalp. Previous medical history also included skin issues since birth, including acne and seborrheic capitis. X-ray of the wrist showed nondisplaced fracture of the distal right radius. Selenium shampoo for seborrheic dermatitis was prescribed. At a clinic visit 2 weeks later a pruritic rash beginning in the groin and spreading to the abdomen, along with worsening seborrheic dermatitis, impetigo of the face, and scabies were noted. Ketoconazole shampoo, cefdinir, and permethrin cream were prescribed, and referrals to Dermatology and Allergy/Immunology were placed due to concerns for an underlying condition causing extensive skin sensitivity and recurrent illnesses. A referral to Hematology/Oncology was also made due to concerns for LCH. Further labs were significant for elevated INR, uric acid, AST/ALT, and low Mg. A skin biopsy showed an increase in Langerhans cells within the hair follicle structure itself, most consistent with the follicular eczema of atopic dermatitis. The family reported an overall improvement in symptoms with prescribed therapies. Further testing with Allergy/Immunology came back negative for immunodeficiency. Elevated IgE was noted at that time, which Allergy/Immunology concluded was the most likely cause of severe atopy and recurrent ear infections.

Discussion/Conclusion

This case illustrates that atopic dermatitis can mimic LCH. LCH was suspected initially due to the patient's multiple skin issues and pathologic fractures. A skin biopsy led to the distinction between the two conditions. Follicular eczema is a form of atopic dermatitis that presents as individual papules including a central hair follicle. Pathologic features include perifollicular and perivascular lymphocytic inflammation of the follicular epithelium. Studies have shown the presence of IgE bearing Langerhans cells in atopic dermatitis, and this is associated with high serum IgE levels, as seen in this patient. Clinicians should be aware of these distinctions when presented with a patient with similar symptoms.

Abstract #60 The Role of Continuity of Care in Preventing Fragmented Care

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Dr. Susan Studebaker - OU-TU School of Community Medicine, Department of Pediatrics
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Introduction

People with medical complexity require regular follow-up and careful coordination between physicians. Instances where patients with medical complexity seek emergency care without primary care physician follow-up can lead to fragmented care.

Case Description

A 19-year-old with complex medical history presented to the General Pediatrics clinic in January 2023 with fatigue, 9.9 kg weight loss over 5 months, and one-month of daily morning eye swelling. Previous medical history included recurrent cerebral venous sinus thrombosis requiring longstanding anticoagulation, cholecystectomy, chronic headaches, hidradenitis suppurativa, hypercholesterolemia, and severe obesity. Physical exam revealed non-tender bilateral cervical and right inguinal lymphadenopathy, urticaria on both forearms, and non-pruritic bilateral eyelid erythema. She had a malar/heliotropic facial rash sparing the nasolabial folds and eyelid swelling/erythema. Bloodwork showed elevated uric acid (8.4 mg/dL), LDH (1635 U/L), ESR (72 mm/h), and CRP (204.2 mg/L) and microcytic anemia. Chart review indicated a 3-month history of diffuse urticaria on her arms, legs, and lower back noted by the patient's primary care adolescent medicine physician in August 2022 which prompted referral to Dermatology and Allergy. September 2022 included an ED presentation with complaints of nausea, abdominal pain, and anorexia. In December 2022 she presented to an urgent care with afebrile sore throat and body aches diagnosed as viral pharyngitis. Four days later, another ED presentation occurred with complaints of atraumatic left knee pain and left-hand pain. In January 2023, she was admitted for evaluation of diffuse lymphadenopathy concerning for lymphoproliferative process. Biopsy of an axillary node was negative for malignancy. She was re-admitted to the hospital 10 days later for sepsis complicated by profound multisystem illness, acute hypoxic respiratory failure requiring ventilator support, and microvascular disease leading to progressive lower and upper extremity ischemia culminating in multiple amputations. Current evaluation favors lymphoproliferative process secondary to SLE vs. lymphoproliferative disorder and secondary hemophagocytic lymphohistiocytosis (HLH).

Discussion/Conclusion

Fragmented care in various disconnected clinical settings can, at times, lead to delays in diagnosis, especially when medical records are at different institutions without a shared EMR. Each of this patient's ED and Urgent Care visits occurred at facilities outside their PCP's EMR network and complaints from these visits were worked up without the care coordination and medical records their PCP's clinic could provide. Working with patients and families to educate about the importance of care continuity, while distinguishing the role of PCP care versus outside care is essential to the care of all patients, especially those with medical complexity.

Abstract #65 Classic Presentation of Primary Adrenal Insufficiency During Acute Viral Illness

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Introduction

Acquired primary adrenal insufficiency (Addison's Disease) manifests as impaired production of cortisol and aldosterone. As the defect is intrinsic to the adrenal gland, a compensatory overproduction of adrenocorticotropic hormone (ACTH) is seen, one of the key features distinguishing it from secondary adrenal insufficiency. Acquired cases are most often autoimmune in nature, present later in life than those of congenital etiology, often during acute illness. Laboratory abnormalities include hyponatremia and hyperkalemia secondary to aldosterone deficiency.

Case Description

An 11-year-old male presented to the emergency department with recurrent emesis and decreased oral intake secondary to viral gastritis. Laboratory studies were obtained including metabolic panel to assess hydration status, revealing hyponatremic dehydration, hyperkalemia, hypoglycemia, pre-renal azotemia and metabolic acidosis. A dextrose infusion was initiated for hypoglycemia. Endocrinology was consulted regarding concerns for adrenal insufficiency given his electrolyte abnormalities and hypoglycemia. Serum cortisol was obtained and found to be markedly low at <1.0 ug/dL, while ACTH was elevated at 1438 pg/mL. Per endocrinology recommendations, he was started on oral hydrocortisone (5 mg) three times daily. Further laboratory workup was obtained to evaluate the etiology of presumed adrenal insufficiency. Serum 21-hydroxylase antibodies were present, confirming diagnosis of autoimmune adrenal insufficiency, or Addison's Disease. He was discharged from inpatient care and followed up in endocrinology clinic, where his hydrocortisone (5 mg) was adjusted to twice daily alongside initiation of once daily fludrocortisone (0.1 mg) for replacement of cortisol and aldosterone deficiencies.

Discussion/Conclusion

Presentation during acute illness is typical of Addison's Disease. The hyponatremia and hyperkalemia in this case were telltale distinguishing features between primary and secondary adrenal insufficiency. Secondary adrenal insufficiency is not associated with salt wasting, as it spares aldosterone, which is regulated via the renin-angiotensin-aldosterone system and not the hypothalamic-pituitary axis. However, viral illness also contributed to his hyponatremic dehydration in this case. A diagnosis of Addison's Disease requires AM cortisol and ACTH measurements revealing decreased serum cortisol and compensatory elevated ACTH activity. An ACTH stimulation test can confirm the diagnosis. This case highlights the importance of thorough evaluation of concerning findings complicating an otherwise straightforward clinical picture.

Abstract #82 Microcystic Lymphatic Malformation with Secondary Infection: A Rare Cause of Macroglossia

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Introduction

Lymphatic malformations are a type of vascular malformations that are most commonly seen in the pediatric population. About fifty percent of lymphatic malformations are present at birth with around 90% diagnosed in the first years of life. More than half of all lymphatic malformations are seen in the head and neck region and within the oral cavity with the tongue as the most commonly affected site. Lymphatic malformations are further divided into macrocystic, microcystic, or mixed based on vesicle sizes in the lesion. Microcystic lymphatic malformations of the tongue typically affect the anterior two-thirds of the tongue leading to macroglossia as a common symptom in childhood.

Case Description

A 20-month-old term infant presented to the hospital from the Ear Nose and Throat clinic for 3 days of progressively worsening edema and black discoloration of the anterior two-thirds of the tongue. Previous history included hospitalization 4 months prior for similar but more severe episode requiring intubation for surgical biopsy and evaluation. Upon arrival, multiple black and dark red papules with purulent drainage were noted over the dorsal and ventral surfaces. Tongue swelling was isolated to distal portion, with posterior pharynx clear and airway patent. Treatment with IV dexamethasone, diphenhydramine, and clindamycin was initiated for possible secondary infection. Testing for Beckwith Wiedemann syndrome, angioedema, and an immunologic workup were unremarkable. Pediatric Dermatology suggested possible congenital vascular malformation of the tongue. Initial biopsy from previous hospitalization was inconclusive, reexamination by Dermatopathology noted that the squamous epithelium displayed spongiosis and acute inflammation without dysplasia. While further biopsy is needed for a final diagnosis, initial findings suggest possible lymphatic malformation. Oral intake, edema, tongue protrusion and discoloration improved throughout the infant's 7-day hospitalization. Prior to discharge, dexamethasone and diphenhydramine were discontinued. At discharge, the infant was sent home with a 10-day course of clindamycin and instructions for the family to follow up with a vascular anomaly ENT specialist for continued treatment.

Discussion/Conclusion

Lymphatic malformations of the tongue are a rare cause of macroglossia with the majority diagnosed in infancy. Appearance of microcystic lymphatic malformations can acutely change or worsen especially with trauma or infections, which are common in this age group. Due to the high-risk locations of these lesions, complications can include difficulty swallowing, airway obstruction, and possibly death. This case highlights the importance of timely recognition of clinical features and timely treatment of swelling and infection.

Psychiatry

Abstract #8 Griscelli Syndrome Type 1, Frequently Fatal in Childhood, in a 34-Year-Old Male

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Introduction

Griscelli syndrome type 1 is a rare, autosomal recessive disease characterized by silvery hair (scalp, eyebrows, and eyelashes), skin hypopigmentation or bronzing, and profound neurological dysfunction which results in seizures, hypotonia, hemi- or quadriplegia, severe neurodevelopmental delay, intellectual disability, and hyper- or hyporeflexia. Diagnosis is made by light microscopy of the hair shaft, skin biopsy, or molecular diagnostics, if available. Twenty-two cases were found in a literature search, with two of those surviving into adulthood.

Case Description

We present the case of a 34-year-old male, possibly the oldest reported survivor (the next oldest being 21). He initially presented for medical care at seven months due to developmental delay and was noted to have silvery hair. Generalized tonic-clonic and absence seizures began soon after but remitted in early childhood. Other findings as a child included esotropia, exotropia, nystagmus, tremor, ataxia, left hemiparesis, hypotonia, brisk reflexes, and bilateral dislocated hips. His skin became bronzed with diffuse freckling in areas exposed to sunlight. He could walk short distances with help, speak 10 words, assist in dressing himself, and make his own bed. As he aged, he experienced repeated infections including otitis media and multiple urinary tract and skin/soft tissue infections. Refractory gastroesophageal reflux disease led to an esophagogastroduodenoscopy which revealed esophagitis, diffuse gastritis, and H. pylori infection. These conditions required antibiotics, when appropriate, and increasing doses of proton pump inhibitors and sucralfate. Cerumen impaction required referral to an otorhinolaryngologist for disimpaction. Explosive diarrhea after meals was treated with loperamide and colestipol. Escalating behavioral outbursts resulted in trials of hydroxyzine, risperidone, and quetiapine - all stopped due to inefficacy or side effects. As is common, he grew weaker with age and eventually could no longer stand on his own. He often fell from his wheelchair, once fracturing his frontal sinus. Though previously prescribed divalproex and clorazepate for seizures, his mother discontinued antiepileptics by age seven or eight. At 31, however, he was referred to neurology for episodes of confusion, blank staring and muscle jerking/twitching. Electroencephalogram was nondiagnostic due to inability to lie still. Not reported elsewhere in the literature, the patient displayed hypersexual behavior which was treated successfully with medroxyprogesterone.

Discussion/Conclusion

Little is known about the challenges these patients face as they age. In addition to progressive neurological dysfunction, the patient exhibited behavioral issues and demonstrated that hygiene difficulties, frequent crawling on the floor, diarrhea, and incontinence requiring a diaper may contribute to increased infection risk.

Abstract #20 Mind the Blood: A Case of Dangerous Psychotropic Polypharmacy Causing Pancytopenia

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Introduction

Blood dyscrasias are uncommon but serious adverse effects of psychotropic drugs. The most clinically concerning dyscrasias are neutropenia and agranulocytosis caused by the antipsychotic and anticonvulsant drug classes. While clozapine is the most prominent cause among antipsychotics, other structurally related second-generation antipsychotics are implicated as well. Of the anticonvulsants, carbamazepine, phenytoin, and valproic acid are most frequently associated with neutropenia, agranulocytosis, thrombocytopenia, and other hematological abnormalities. These drugs are sometimes combined for psychiatric care, and their compounded effects on the prevalence of blood dyscrasias are unknown. Here we examine a case of pancytopenia that likely resulted from the prescription of multiple psychotropic drugs.

Case Description

A 22-year-old man with a history of non-verbal autism spectrum disorder with behavioral disturbances presented to the hospital for lethargy with lab values demonstrating pancytopenia. On initial exam, the patient had sedation, weakness, and diffuse bruising on his lower extremities. His initial CBC showed: WBC 2.1(L), Hgb 10.4(L), MCV 104(H), platelets 47(L), ANC 900(L), and elevated reticulocyte count. A psychiatry consult was placed for possible psychotropic-induced pancytopenia. His outpatient medication regimen included olanzapine 20mg nightly, risperidone 2mg TID, valproate 1500mg nightly, clonidine 0.2mg BID, sertraline 200mg daily, topiramate 25mg BID, and riluzole 50mg BID. On admission, risperidone and olanzapine were discontinued. Riluzole was held, and valproate was lowered to 1000mg. After five days, risperidone was reintroduced at 1mg QHS. A hematology consult diagnosed drug-induced pancytopenia; and rechallenge with risperidone resulted in worsened markers of dyscrasia, providing further evidence of a drug-induced mechanism. The patient was discharged on a modified regimen of valproate 1000mg, risperidone 1mg, topiramate 25mg BID, sertraline 200mg, and clonidine 0.2mg BID. The patient demonstrated symptomatic improvements in sedation at discharge and follow-up. Hospital follow-up after 6 weeks with Hematology demonstrated WBC 5.0, Hgb 13.1, MCV 99.9, platelets 91, and ANC 3000.

Discussion/Conclusion

Blood dyscrasias are a rare but considerable side effect of many antipsychotic and anticonvulsant medications, of which the mechanism is still poorly understood. Theorized pathophysiology includes the formation of drug-dependent antineutrophil antibodies and drug-induced toxicity on hematopoietic cells. The prevalence with multi-drug therapy is unclear but could theoretically be higher due to synergistic effects. The highest rates of complications from single drugs are cited to be with clozapine (0.18%) and carbamazepine (0.14%). Clinicians should be aware of all medications that can cause these hematologic effects in their patients and monitor blood counts regularly, especially for those on polypharmacological regimens or who are immunocompromised.

Abstract #25 Whipped by Whippets: Inhaling Your Way to Psychosis, Delirium, and Neuropathy

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Introduction

Substance use disorders are common and obtaining a urine drug screen (UDS) is a standard procedure when a patient presents with altered mental status and bizarre behaviors. One class of substances that cannot be detected via classic urine drug panels is inhalants. Inhalants are some of the most accessible substances of abuse, as they are found in various household and industrial products, and use is increasing worldwide. One inhalant, 'whippets,' is a nitrous oxide-containing product used as a recreational drug to produce euphoric, relaxing, and dissociative effects. Many physicians neglect to ask patients about the use of inhalants. As a result, the clinical presentation of chronic whippet abuse may be mistakenly attributed to other causes, thus delaying appropriate treatment.

Case Description

A 31-year-old female presented to the ER with disorientation, agitation, disorganized behaviors, paranoid delusions, and hallucinations. Other symptoms included urinary incontinence, falls, numbness of extremities, blurred vision, and generalized weakness. Much of her workup, including UDS and CT head, was unremarkable. Her only notable lab abnormality was a low vitamin B12 level of 148. A mental health hold was placed due to distressing psychotic symptoms, decline in function, and an inability to meet basic needs. She was transferred to an inpatient psychiatric unit. Over the next several days, the patient remained delirious and psychotic, requiring both scheduled and emergency antipsychotic medication to control symptoms. The patient eventually reported recent heavy use of "whippets." Vitamin B12 repletion was ordered but despite this, weakness and falls continued. She was then transferred to a general medical hospital for further workup. MRI brain/C-spine, LP with CSF studies, autoimmune encephalitis panel, and meningitis panel returned normal. EEG demonstrated nonspecific slowing without epileptic activity and EMG showed evidence of mild axonal neuropathy of the legs. With aggressive vitamin B12 repletion, psychosis and delirium slowly resolved. She was discharged to a physical rehabilitation center three weeks after her initial presentation for further treatment of weakness and inability to ambulate.

Discussion/Conclusion

Nitrous oxide is linked to functional inhibition of Vitamin B12 and should be suspected in patients presenting with delirium and neurologic impairment. In these cases, vitamin B12 repletion is vital to the patient's recovery, and antipsychotic agents may be utilized to control severe agitation. A thorough review of the patient's substance use history is critical, and a part of that history should include use of inhalants such as whippets.

Abstract #56 Obsessive-Compulsive Disorder and Addictive Social Media Consumption

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Introduction

Obsessive-compulsive disorder (OCD) is a chronic mental health condition that can be time consuming and cause a person significant distress and even cause psychosis in rare exacerbations. Changes in mental health in relation to social media consumption continues to be studied, but compulsive social media consumption and the exacerbation of specific mental health conditions have not been identified.

Case Description

A 25-year-old man with a history of OCD was brought to a psychiatric hospital after attacking his mother because he believed she was a demon. The patient was seen regularly by his PCP and adherent to medications. Upon admission, he reported having obsessive thoughts about being harmed for being gay that were becoming progressively worse. These thoughts started after he began to consume social media depicting hatred towards gay people a couple of years ago and have become progressively worse. These obsessive thoughts started taking up most of his time and caused him to drop out of college, become isolated from his friends, and unable to hold a job. He spent at least 10 hours a day either consuming social media or having these obsessive thoughts. The thoughts turned into visual hallucinations of demons trying to attack him and take him to hell because of his sexual orientation. He also began to hear the demons talking down to him and felt them attacking him. The only way he could get the hallucinations to subside was to lash out and attack the demons. This typically resulted in hitting walls, but this last time he grabbed and shook his mother. While in the hospital, the goal was to stop the hallucinations and stabilize him. This was achieved about a week later by adjusting his medication regimen along with psychotherapy.

Discussion/Conclusion

This case is very rare, but it leads us to question the effects of compulsive social media consumption on those with OCD. The use of social media is growing exponentially leading to more and more compulsive consumption. Understanding its trajectory on mental health can allow for funding and research to be allotted to the appropriate domains in the hopes that we can have the necessary resources to help those affected by compulsive social media consumption.

Abstract #57 Pediatric Autoimmune Encephalitis Post-COVID-19

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Introduction

Literature describes neurologic symptoms associated with COVID-19 infection including headache, dizziness, anosmia, and delirium, though in some cases these disturbances persist beyond the acute period. Post-COVID autoimmune encephalitis characterizes long-term consequences of this viral illness on neural function, with symptoms progressing to confusion, anxiety, insomnia, hallucinations, and disturbances in verbal and motor functioning. Literature regarding pediatric autoimmune encephalitis is limited, with no current consensus on treatment of this complex illness.

Case Description

The patient is a 12-year-old female with history of a coronavirus infection in 2020 presenting to the hospital with severe weight loss with a BMI of 12.22. Several months after acute COVID infection, she developed headaches, urinary incontinence, depression, restrictive eating without body dysmorphia, obsessive-compulsive behaviors, and arthritis with positive HLA B27 and ANA. During hospitalization she demonstrated dissociative episodes in which she repeated a single phrase for up to three hours with disorientation, psychomotor abnormalities, and amnesia. When oriented she appeared dysthymic, though family described her as previously happy and highly achieving. Brain MRI showed mild global atrophy, and EEG was grossly negative. She had received plasmapheresis and monthly intravenous immunoglobulin therapy with improvement in psychiatric symptomatology following injections.

She was diagnosed with autoimmune encephalitis, with associated avoidant-restrictive food intake disorder. Home fluoxetine was increased during hospitalization for a short duration until she developed psychomotor agitation, difficulty sleeping, “angry” mood, and a dissociative pacing episode lasting three hours. Fluoxetine was subsequently discontinued due to concern for activation. Olanzapine was initiated for mood, obsessive-compulsive thinking, and appetite stimulation with no aversive effects prior to discharge. Inpatient eating disorders treatment was pursued, though she had to be placed on a waitlist for a specialized facility out of town.

Discussion/Conclusion

This case represents rare post-COVID neuropsychiatric sequelae including obsessive-compulsive behaviors and disordered eating. While treatment with IVIG may mitigate psychiatric symptoms associated with autoimmune encephalitis, pharmacotherapy could also be indicated for associated anxiety or mood disturbances. Additional consideration may be applied when selecting medication with activating properties in the context of inflammatory brain disorders, though in this case there were other factors that could not be excluded as causes of increased agitation. Antipsychotic medication may mitigate obsessive-compulsive thinking and behaviors. Furthermore, children with complex conditions requiring multidisciplinary treatment are at higher risk of experiencing pediatric medical stress, which further contributes to atypical presentations.

Abstract #63 Managing Mental Illness in a Pediatric Patient with Chronic Disease

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Introduction

Medical illness causes stress for patients but becomes increasingly difficult to manage with comorbid mental illness. Bronfenbrenner's ecological model describes the interactions between different systems (e.g., family, school, social determinants of health) that make up a child's environment. Recognizing the complexity of these systems in addition to childhood medical stress is key to understanding and managing medical illness. Furthermore, medical disease may precipitate mental illness, which complicates overall management and can worsen the medical disease. Here we examine a pediatric patient with type 2 diabetes, who then developed major depressive disorder and oppositional defiant disorder.

Case Description

A 12-year-old female with type 2 diabetes diagnosed at age 8 has had poor glycemic control since then leading to insulin dependence. At home, she struggles with her relationships with her parents: her father has a difficult time providing for their family, and her mother has her own medical stress from type 2 diabetes and a history of stroke. Spanish is their primary language, complicating the patient's medical and psychiatric care. Within the past year, her behavior has worsened, and she has refused to attend school and has had outbursts at home. Now at age 12, the patient is enrolled in a partial hospitalization program for oppositional defiant disorder and major depressive disorder. Her depression is adequately treated with escitalopram. However, she continues to demonstrate problematic behaviors demonstrated through outbursts at home and family therapy sessions in addition to overdosing on insulin to disguise her elevated blood sugars to get what she wants, like eating sweets. Her mother also enables these unhealthy behaviors or else the patient bullies her.

Discussion/Conclusion

Bronfenbrenner's model highlights the importance of considering the many complex factors that play interconnected roles in a child's environment. Healthcare providers must step back and see patients as individuals as part of a complex system on several levels. Chronic disease causes an initial stress that pervades other settings for a patient and can grow such that it manifests as a mental illness. The medical disease may even become a lethal tool for patients to get what they want or to harm themselves (e.g., insulin). Recognizing the patient's interactions with different systems can reveal how the patient's medical illness is feeding the mental illness and vice versa, creating a complex situation in choosing what is the best approach to target patient treatment and external factors to improve the patient's well-being and health.

Abstract #85 Amantadine: An Adjunctive Treatment for Aggression in Children with Neurodevelopmental Disorders

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Introduction

Treatment of aggressive behavior in children with neurodevelopmental disorders can be challenging, especially if language or cognitive delays impact communication and coping skills. Psychotropic medication can provide support when behavioral strategies are not sufficient. The Food and Drug Administration has approved two medications, risperidone, and aripiprazole, to treat irritability in children with autism. These can be highly effective but have a high-risk side effect profile. Amantadine and other drugs that modulate glutamate neurotransmission through the NMDA receptor have become novel therapeutic targets. Initial research supports the use of amantadine to treat aggressive behavior in patients with developmental disabilities including autism spectrum disorder and traumatic brain injuries. It has an acceptable side effect profile, well tolerated in children and adolescents, and regarded as safe for long-term use.

Case Description

#1- A 10-year-old female presented with chronic behavioral problems, disruptive mood dysregulation disorder and attention deficit hyperactivity disorder. She struggled with chronic uncontrolled anger outbursts despite taking therapeutic doses of guanfacine, methylphenidate ER, risperidone and had access to behavioral therapy. Amantadine 50mg twice daily was initiated and titrated to 100mg twice daily along with the other psychotropic medications. Family noted significant decreased intensity and frequency of anger outbursts after two weeks on amantadine. Later risperidone was tapered off and aggressive behavior and ADHD symptoms improved.

#2- An 8-year-old female with autism spectrum disorder with intellectual and language impairments presented to clinic, struggled with bruxism, self-injurious behaviors, sleeping problems, and aggression. Patient was taking olanzapine/aripiprazole, hydroxyzine, guanfacine and had access to ABA therapy. Amantadine was initiated at 50mg twice daily and titrated to 100 mg twice daily. Significant improvement in aggression and self-injurious behavior was observed and language skills increased per family. An attempt of dose reduction of antipsychotic medication is currently underway.

Discussion/Conclusion

Significant behavioral improvements were observed in these patients receiving adjunctive amantadine. Amantadine seems to be well-tolerated with a low side effect profile compared to other medications. These patients were taking other psychotropic medications concurrently and there remains a question whether amantadine could be a good first line agent for pediatric aggression and irritability before medications with higher side effect profiles are considered. Amantadine is not currently approved by the Food and Drug Administration for these conditions but may be a promising option. Further RCTs are warranted.

Surgery

Abstract #30 Carotid Artery Resection and Interposition Bypass in the Setting of Failed Carotid Stenting

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Introduction

Stroke is one of the leading causes of mortality and disability in the United States, affecting around 800,000 Americans every year. Carotid artery occlusive disease poses significant risk for stroke and requires recognition, prevention, and comprehensive treatment planning. While carotid artery endarterectomy (CEA) has long been the gold standard of surgical treatment for this disease, newer modalities such as transfemoral carotid artery stenting (CAS) and transcarotid artery revascularization (TCAR) offer less invasive options. We present a case of failed CAS requiring complex carotid artery reconstruction.

Case Description

The patient is a 61-year-old man with severe hypertension, diabetes, chronic kidney disease, and history of bilateral transfemoral CAS. Both carotid stents had required subsequent re-intervention for in-stent restenosis. On the right, recanalization attempts resulted in a periprocedural stoke with residual expressive aphasia and left him with a chronic occlusion. The left was restented for a 99% critical stenosis with recurrence only 1 month later. He was asymptomatic at this time but given the immediate restenosis and need to preserve at least one carotid artery, a complex carotid artery resection with great saphenous vein interposition bypass graft was planned.

In December of 2022 the patient underwent mandibulotomy with split mandible exposure performed by otolaryngology. With adequate exposure to the skull base, the vascular surgery team then ligated his external carotid artery and the stent-containing portions of the carotid artery were resected. Next, using a portion of the right great saphenous vein, an interposition bypass was created with end-end anastomoses to the common carotid artery proximally and the extracranial internal carotid artery distally. He tolerated the procedure without complication and on follow up had a widely patent bypass and his antihypertensive requirements had decreased.

Discussion/Conclusion

This case demonstrates a unique, aggressive approach to carotid artery exposure in the treatment of complex recurrent occlusive disease following multiple failed prior interventions. Although CAS offers a less invasive option to CEA for treatment of carotid arterial disease, patient selection is paramount and long-term durability has not been established. This case demonstrates failure of CAS resulting in the distal aspect of the stents landing beyond the reach of a typical carotid exposure. Definitive reconstruction required multiple adjunctive maneuvers including nasotracheal intubation, division of the digastric and omohyoid muscles, and ultimately mandibulotomy. Multidisciplinary approaches can prove crucial in difficult cases such as this and the threshold for engaging several arms of the healthcare infrastructure should be low when the benefits are substantial.

Abstract #33 A rare case of primary sternal osteomyelitis caused by Pseudomonas aeruginosa

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Introduction

Primary sternal osteomyelitis (PSO) is a rare entity usually caused by hematogenous bacterial seeding of the sternum. This most commonly occurs in the setting of medical comorbidities that predispose an individual to infection, such as diabetes, immunosuppression, or intravenous drug use. On the other hand, secondary sternal osteomyelitis is a result of chest trauma, cardiac surgery, or other iatrogenic causes. Rarely, PSO may develop without an obvious infectious nidus. In this report, we describe a patient with PSO caused by Pseudomonas aeruginosa.

Case Description

The patient is a 49-year-old female with a remote history of Roux-en-Y gastric bypass that was complicated by gastrojejunostomy stricture requiring multiple endoscopic and surgical procedures to treat. She initially presented with epigastric abdominal pain and persistent nausea and vomiting. On exam, she had non-specific abdominal tenderness. Therefore, she underwent evaluation for a possible recurrent stricture. However, laboratory work-up was unremarkable and imaging studies as well as an esophagogastroduodenoscopy (EGD) revealed no significant abnormalities. After her EGD, the patient complained of thoracic and scapular pain, which she also reported had been ongoing for six weeks prior to admission. CT and MRI of the chest were obtained, which showed evidence of osteomyelitis of the distal sternum and adjacent left 11th rib. Of note, the patient had no history of chest trauma, thoracic surgery, or bloodstream infections. A bone biopsy was obtained for diagnosis, and the pathology from the biopsy demonstrated inflammation consistent with osteomyelitis. The patient was then taken to the operating room for partial sternectomy and debridement of infected soft tissue and bone. The culture specimens obtained from this operation grew Pseudomonas aeruginosa. Empiric intravenous cefepime was started to treat the infection. The patient was returned to the operating room multiple times for repeat debridement until the wound was clean. The patient will undergo reconstruction of the chest wall utilizing a rectus abdominus muscle flap with primary closure versus split thickness skin grafting.

Discussion/Conclusion

Sternal osteomyelitis is an exceedingly rare condition, accounting for less than 1% of all osteomyelitis cases. There are currently only case reports of primary sternal osteomyelitis, with Staphylococcus aureus being the most common organism isolated. Our patient developed pseudomonal sternal osteomyelitis without any predisposing factors. Her prior abdominal surgery and its complications were a red herring that unfortunately led to a delay in diagnosis. This case illustrates the importance of considering the chest as a source when evaluating patients with non-specific epigastric abdominal pain.

Abstract #44 Pancreaticolithiasis after Whipple: A Novel Differential for Cause of Chronic Pancreatitis

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Introduction

Over 5% of patients develop chronic pancreatitis following pancreaticoduodenectomy or Whipple procedure. One rare complication of Whipple resection is the development of pancreatic calculi which can lead to chronic pancreatitis. Drainage of dilated main pancreatic ducts through stone removal has been shown to dramatically reduce pain in these patients. However, conventional stone removal via endoscopy is not possible in a patient with post-Whipple surgically altered anatomy. Here we present the case of pancreatic stone removal and pancreatic duct drainage using a revisional lateral pancreaticojejunostomy or Puestow procedure in a post-Whipple patient.

Case Description

A 42-year-old female, with a previous history of Whipple procedure for papillary epithelial tumor with no relapse of disease, was referred for chronic pancreatitis symptoms. CT revealed calcified stone lodged in the main pancreatic duct Magnetic resonance cholangiopancreatography revealed significant dilatation of the main duct with two pancreatic calculi near the pancreaticojejunostomy anastomosis, resulting in an obstruction which led to symptomatic chronic pancreatitis. After additional workup, the patient underwent Puestow procedure to remove the offending calculi and decompress the main pancreatic duct. The patient's postoperative course was complicated by a pancreatic leak that was contained with a drain placed by Interventional Radiology

Discussion/Conclusion

Whipple procedure is commonly used as a surgical treatment for pancreatic cancer or chronic pancreatitis. Long term complications of Whipple are not well understood because of low long-term survival. Because survival has improved in recent years, it has become necessary to develop new methods to treat long term complications that are not well documented in these patients with surgically altered anatomy. A thorough understanding of anatomy and pathophysiology is instrumental in developing new and creative solutions with post-surgical complications.

Treatment options for symptomatic chronic pancreatitis secondary to intraductal obstruction in a patient with post-Whipple surgically altered anatomy are not well described in the current literature. The present case serves as an example of a novel surgical approach to the removal of intraductal pancreatic calculi in settings in which endoscopic therapy is not possible.

Abstract #53 The Sinister Presentation of Sinistral Portal Hypertension

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Introduction

Sinistral portal hypertension is caused by increased pressure within the portal system from compression or obstruction of the splenic vein. A growing mass on the tail of the pancreas can present as the source of this compression and manifest with gastric varices, gastrointestinal (GI) hemorrhage, and splenomegaly. We present the following interesting case of a male who presented with acute on chronic upper GI bleeds from his gastric varices secondary to sinistral portal hypertension.

Case Description

A 72-year-old male with significant coronary artery disease (CAD) in need of coronary catheterization and stent placement presented in May 2022 with acute on chronic severe anemia secondary to upper GI bleed. The patient underwent endoscopy and subsequent endosonogram, which showed a large pancreatic tail mass invading the splenic hilum and obstructing the splenic vein causing sinistral portal hypertension and gastric varices. Fine needle biopsy was performed on the pancreatic mass and histopathological examination confirmed this to be pancreatic adenocarcinoma. The patient underwent endovascular splenic artery embolization to help decompress the gastric varices. This resolved the GI bleed and the patient was able to undergo cardiac catheterization and placement of a drug eluting stent. He was placed on dual antiplatelet therapy. The patient was then started on neoadjuvant chemotherapy with Gemcitabine and Abraxane. Unfortunately, the patient did not tolerate treatment well and became too debilitated for any further treatment. He was placed on hospice in November 2022.

Discussion/Conclusion

Sinistral portal hypertension is a rare cause of GI bleeding and should raise concern for compression or obstruction of the splenic vein from pancreatic origins. In this case, pancreatic tail adenocarcinoma's invasion of the splenic vein led to a pressure buildup in the portal system manifesting with gastric varices, GI bleeding, and splenomegaly. Splenic embolization can act as a bridging therapy to ameliorate gastric varices and control any GI bleeds. The definitive management is to remove the offending pathology along with splenectomy to decompress the left portal venous system.

Abstract #67 Glucagonoma and the 4D Syndrome: An Unusual Combination of Symptoms

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Introduction

Pancreatic neuroendocrine tumors (PNETs) are rare neoplasms which arise from enterochromaffin cells in the islets of Langerhans within the pancreas. PNETs are categorized as functional or nonfunctional based on their hormonal secretory properties. Although the majority of PNETs are nonfunctional, the ones that are functional can secrete enough hormone to cause a variety of rare and puzzling clinical symptoms.

Case Description

A 66-year-old-man presented to an outside emergency room with lower extremity deep vein thromboses (DVTs) and multiple pulmonary emboli, including a small saddle embolus, with no obvious provoking factors. He underwent MRI, which revealed a 3.7 cm mass within the tail of the pancreas. This was originally thought to be an intrapancreatic accessory spleen. Three years later, the man presented again to the emergency room, this time with an acute left MCA stroke, 50-pound weight loss over the past 6 months, diarrhea, and right lower extremity dermatitis. He underwent a CT scan of his abdomen, which showed enlargement of the pancreatic tail mass from the 3.7 cm to 6.1 cm. Fine needle aspiration of the mass revealed a well-differentiated neuroendocrine tumor. Biochemical workup revealed an alarmingly elevated glucagon level of 3980 pg/mL. A DOTATATE PET scan was obtained, revealing a stable pancreatic tail mass with no evidence of metastatic disease. The unusual combination of symptoms and lab findings led to the diagnosis of a glucagonoma. The patient subsequently underwent distal pancreatectomy and splenectomy, with final pathology revealing pT2N0M0R0 functional grade 2 neuroendocrine tumor. 6-month follow-up surveillance scans showed no residual disease, and his original presenting symptoms have resolved.

Discussion/Conclusion

This is a case of a glucagonoma, a rare subtype of functional PNETs. Glucagonomas lead to a presentation often termed the 4D syndrome, due to the collection of clinical symptoms classically associated with elevated glucagon all beginning with the letter D: dermatitis, diabetes, DVT, and depression (some sources include diarrhea and declining weight as well). Because glucagonomas are often missed, they can grow quite large by the time they are finally diagnosed, as was seen in our case. This case illustrates the importance of close evaluation of incidental imaging findings in early detection of certain rare diseases. We hope that increased awareness of pancreatic mass findings in association with any of the 4D symptoms will lead to earlier diagnosis of glucagonomas, preventing exacerbation of potentially fatal symptoms that may arise when the tumor is caught late.

Abstract #70 Lower Extremity Arteriovenous Fistula: a Unique Dialysis Access Option

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Introduction

As the United States population continues to age, chronic kidney disease (CKD) and end-stage renal disease (ESRD) are becoming increasingly common dilemmas that patients and providers face. In addition, the lifespan of patients with CKD and ESRD is increasing. With this, hemodialysis (HD) access requirements have also increased over time. HD access requires a unique approach for each patient and consideration of individual needs is crucial for patient-tailored outcomes, here we will present one such case.

Case Description

We present the case of a 70-year-old man with CKD on HD who has had a prior upper extremity arteriovenous fistula (AVF) that was unable to be used due to central venous occlusion. Given the lack of upper extremity access options this presented, he underwent non-invasive vascular imaging of his bilateral lower extremities and central veins to evaluate if lower extremity AVF creation was possible. These showed that his central veins and the vessels of his right leg proved amenable to AVF creation.

The patient then underwent a right superficial femoral (SFV) vein to superficial femoral artery (SFA) AVF creation. After a venogram demonstrated widely patent central veins, an incision in the right medial thigh was used to expose the adductor canal and above-the-knee popliteal vessels. A groin incision was then made to expose the femoral artery bifurcation. The junction of the SFV and popliteal vein was then ligated and the distal end of the SFV was brought up to the SFA. A 5mm arteriotomy was made in the SFA, followed by an end-to-side anastomosis between the SFV and SFA. At two month follow up the patient did report some swelling to his RLE, but his AVF was found to be patent and with adequate flow on duplex and he has now successfully used the AVF for dialysis.

Discussion/Conclusion

While lower extremity AV fistulas are a rarely used dialysis access option due to higher infection risk and limb ischemia, this case demonstrates their utility in well selected candidates. With the chronic, repetitive venous access and central line placements many dialysis-requiring patients are subject to, central venous stenosis and occlusion are a common issue faced by vascular surgeons and interventionalists when considering dialysis access. With a lack of upper extremity options, lower extremity autologous access can safely be offered to patients following a frank conversation of the risks related to this type of fistula.

Abstract #75 A Rare Neoplasm in an Unusual Location: Upper Extremity Granular Cell Tumor

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Introduction

A granular cell tumor (GCT) is a rare primary neoplasm representing less than 1% of all possible soft tissue tumors. These tumors can be benign or malignant, can occur in a wide range of locations and tissue types, and can present in a wide range of patients. We detail the case of a man who presented with a granular cell tumor on his arm.

Case Description

A male in his 50s presented to the clinic with complaints of a lesion on his right upper arm. He reported that the lesion was mildly tender and that it had not changed in size or appearance for several years. He had no personal or family history of similar lesions, and his history was positive for tobacco use. The mass was immobile and nontender to palpation, and the remainder of his physical exam was unremarkable. The patient was set up for ultrasound of the arm, which revealed a subcutaneous, round, and well-circumscribed lesion measuring 1.3 cm. Complete excision was achieved, and pathologic analysis of the mass revealed a benign granular cell tumor. The patient recovered completely without incident.

Discussion/Conclusion

The major factor that characterizes GCTs is abundant granular eosinophilic cells. GCTs that occur in soft tissues (subcutaneous or intramuscular) are rarer than those that occur in the dermis or organs. GCTs can be associated with a variety of prognoses, although most that occur are benign with low risk of malignancy. Of all possible locations, most GCTs - up to 65% - occur in the head and neck region, making those occurring subcutaneously in the upper extremity unusual. Ultrasound is the most common modality for imaging of GCTs found in the skin, subcutaneous regions, or head and neck. Fine needle aspiration (FNA) or excisional biopsy are typically used for histopathologic analysis. Once diagnosed, complete tumor resection with clear margins is standard for treatment. Out of benign GCTs, those that occur in the upper extremity tend to have a slightly worse prognosis: they may present as larger lesions, have higher rates of positive margins upon resection, and have higher rates of recurrence. Other than those complications, benign GCTs do not usually cause any significant alterations in patient morbidity or morality.

Abstract #76 Classic Presentation of Venous Thoracic Outlet Syndrome Complicated by Hypercoagulable State

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Introduction

Venous Thoracic Outlet Syndrome (vTOS) is a group of signs and symptoms from compression of the subclavian vein as it passes above the first rib and behind the clavicle. Etiologies include developmental abnormalities, injuries, and physical activities. Regardless, all cause venous stasis and increased pressure in the distal veins. vTOS presents with swelling, pain, cyanosis, and paresthesia of the affected arm, usually after repetitive overhead activity. Patients presenting with vTOS are often young and otherwise healthy.

Case Description

A 25 year old male who presented to the emergency department with a two week history of left upper extremity swelling, discoloration, and pain. He reported worsening pain, swelling, red discoloration with active range of motion, and paresthesia of his hand. He initially presented to the emergency department three days before and was found to have a left upper extremity deep venous thrombosis extending from his left subclavian vein to brachial vein. He was discharged on Eliquis. The patient denied personal history of DVTs but endorsed significant family history of hypercoagulable disorder in his grandfather (Factor V Leiden) and mother (Antiphospholipid syndrome). He himself had not undergone hypercoagulable testing. The patient did have a history of repetitive arm movement with stocking meat at the grocery store and playing volleyball. Due to history and location of lesion, vTOS combined with his family history of hypercoagulability was suspected. He was started on anticoagulation. He underwent left upper extremity and central venogram via access of the left basilic vein with suction thrombectomy, subclavian venoplasty, and subclavian venogram with provocative arm raise test. Intraoperative imaging showed DVT resolution following intervention and left subclavian occlusion at the clavicle with arm raise test. To date, due to current anticoagulation, evaluation of secondary hypercoagulability state is on hold until anticoagulation is stopped. Thoracic outlet decompression is planned.

Discussion/Conclusion

vTOS is an uncommon condition that requires multi-step intervention for the acute and underlying condition. As with any venous thrombosis, anticoagulation is the first step. Catheter-directed venography and thrombolysis are both preferred interventions for diagnosis and treatment of symptomatic vTOS as demonstrated in this case. Thoracic outlet decompression, often via first rib resection, is noted to be of utmost importance in vTOS to provide long lasting symptom relief. In the face of convincing diagnostic tests for vTOS, other medical factors cannot be ignored. As in this patient, when other possibilities for hypercoagulability exist, further studies are warranted but initial management remains the same regardless.

Abstract #79 Unusual Case of Insulinoma Presenting as Psychiatric Illness

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Introduction

Insulinoma is a rare type of functional neuroendocrine tumor arising from the beta islet cells of the pancreas. Traditionally the Whipple's triad describes a collection of textbook signs and symptoms associated with insulinoma fasting hypoglycemia <50mg/dL, symptoms of hypoglycemia, and immediate relief of symptoms after administration of glucose. However, patients can present with a wide variety of seemingly non-related symptoms making this diagnosis very difficult. We present a case of a patient suffering from a constellation of symptoms including psychiatric illness that ended up having an insulinoma.

Case Description

Patient is a 41 year old female with no significant past medical history who presented to her primary care physician 5 years ago with infrequent episodes of perioral numbness, impaired vision, and anxiety treated with SSRIs. Throughout the next 4 years the patients' symptoms were largely unchanged, therefore no biochemical workup was done that we know of, and was just placed on observation. Patient's symptoms worsened over the fifth year with additional symptoms of aphasia, palpitations, diaphoresis, behavioral changes, and "blank stares." Symptoms improved after eating meals. Finally, a biochemical panel was run which showed low glucose levels. Further laboratory workup showed a significantly elevated proinsulin level. Imaging including MRI was performed which demonstrated a 1.5cm hypodense mass in the tail of the pancreas. Patient was then admitted for a 72hr fasting glucose challenge which was prematurely stopped due to multiple significant symptomatic hypoglycemic episodes. Patient then underwent endosonogram and fine needle biopsy of the pancreatic mass. Pathology confirmed neuroendocrine tumor. Patient underwent a Robot assisted distal pancreatectomy and splenectomy. Postoperative course was routine. Patient had subsequent outpatient followups over the next several months. She had complete resolution of hypoglycemic events and symptoms, including all of her psychiatric symptoms.

Discussion/Conclusion

An Insulinoma traditionally presents with a Whipple's Triad which includes fasting hypoglycemia <50mg/dL, symptoms of hypoglycemia, followed by immediate relief of the underlying symptoms after administration of glucose. However, atypical presenting Insulinomas overlapping with psychiatric illnesses have largely been limited to case studies. Therefore, it is important to consider various differentials of hypoglycemia, such as an insulinoma when patients present with an unusual set of psychiatric symptoms especially in those who have stayed refractory or worsened on traditional psychiatric treatment.

Abstract #84 Warm or Warn Trauma Bay Resuscitative Efforts?

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Introduction

Each year in the United States about 1,330 people die of cold exposure.[1] This case report involves a 41-year-old male who arrived as a level 1 trauma, who had been found down in the street , arrived with active CPR , and was cold to the touch. The temperature recorded was 22C. The decision was then made to place double bilateral chest tubes to patient's thorax to initiate active rewarming. Studies have attempted to show whether gastric versus thoracic rewarming is more effective and the cardiac complications with them.[2] There are other forms to actively rewarm such as peritoneal dialysis[3], cardiopulmonary bypass but sometimes these modalities are not feasible. This case report aims to explain the lavage method and role for thoracic lavage in accidental hypothermia and aims to address the cardiological and neurological recovery in a patient. Moreover, we would like to highlight barriers that populations that are houseless face.

Case Description

We present a case of a 41-year-old male with a prior medical history of AIDS, HIV, PJP, suspected tuberculosis who was found down. Per EMS he recently had been discharged from a local hospital and was houseless. On arrival to our Trauma Bay patient arrived in active CPR. EMS reports on their arrival he was posturing with a GCS of 9, was moaning and was cold to the touch. On primary survey, the patient was markedly hypothermic with a temp of 22C, dilated pupils, and was actively receiving CPR. Patient received CPR for approximately 45 minutes prior to achieving ROSC. Once ROSC was achieved his heart rate was noted to be bradycardic. Due to severe hypothermia the decision was made to place double bilateral chest tubes to allow for active rewarming. Shortly after the patient had a brief run of ventricular fibrillation of which he responded to an initial 200J shock. The patient's pelvic X-ray and FAST exam were grossly unremarkable. Once the patient had been stabilized and moved to the ICU it was noted that he had a maximum temperature of 38.3C(Rectal). The patient made a full recovery with removal of chest tubes and without any neurological intervention. Barriers to access of care however, continued to be faced by our patient and his chronic diagnoses.

Discussion/Conclusion

This case illustrates the prompt and accurate diagnosis of severe hypothermia in the setting of cardio-pulmonary resuscitation. Further this case illustrates the social disparities and access to healthcare in the houseless population.